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VOL. I.—No. II. JUNE, 1843.

THE

BRITISH QUARTERLY JOURNAL

OF

DENTAL SURGERY.

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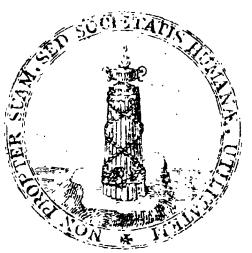

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THE BRITISH QUARTERLY

JOURNAL OF DENTAL SURGERY.

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J. E. being actual Manufacturer, can warrant the Quality and Workmanship of these Instruments with perfect assurance.

OPINIONS OF THE PRESS.

"The bold attempt (the first of the kind, we believe, in this country) deserves every encouragement; and, by securing the services of numerous and skilful *collaborateurs*, the British Quarterly Journal of Dental Surgery, will be certain to attain success."—*London Medical Gazette.*

"We are glad to hail the appearance of a journal dedicated solely to Dental Surgery. If it can force a circulation it cannot but do good, and whatever knowledge it diffuses cannot but be of essential service to the parties it is intended for. The head quarters of quackery and imposture have long been firmly fixed in Dental Surgery, where more swindling in connection with more physical pain has been exhibited than in any other department of human business. A respectable journal like the one under notice must as one essential part of its success do much in crushing this formidable hydra, and principally in that expectation we warmly hail the good work commenced."—*Medical Times.*

"We are amongst those who consider the sub-division of the Healing Art to be highly beneficial, both as regards the scientific advance of each particular branch, and the attainment of manual dexterity and efficiency in the operative procedures involved in their practice. The truth of this opinion is forcibly illustrated by the progress lately made in that department of Surgery, to which this publication (the first Number of which has just been issued) is especially devoted A very few years has seen the *bar-ber-ous* tooth-drawer of St. Martin's Lane converted into the scientific dentist of the West End. The art is, however, yet in its infancy, retarded not so much by the empirical announcements and practice of some of its professors, as the want of knowledge in the public mind respecting its true principles. To supply this deficiency, and thus to elevate the dentist's art to its true grade in the estimation of the community, is evidently the object of the proprietors of the *British Journal of Dental Surgery*; and well do they merit that hearty support which their novel and highly interesting Journal will receive.

"As regards the work itself, it is well printed, handsomely and liberally illustrated, and contains several excellent papers of great importance, evidently written by men of high standing in their profession; much practical and scientific information is to be gleaned from a perusal of its contents, as well to the public as to practitioners, to whom it will afford a facility for interchange of ideas and communication of practical facts, which they have not heretofore possessed, and which alone must render the future numbers of surpassing value—*The Chemist.*

"The importance of Dental Surgery has long been acknowledged, the teeth forming such an essential part in man's organization. Great advances have been made of late years, and various have been the inventions for curing carious teeth, and preventing that most painful of diseases, the tooth-ache. Until the appearance of this publication, however, there was no work exclusively devoted to dental science. Judging from this number, we are of opinion that this branch of the surgical profession is likely to be materially benefited by such a publication. There are several excellent papers, evidently written by men conversant with the subject, and much information of a practical and scientific character is to be gleaned from a perusal of its contents."—*Atlas.*

"The British Quarterly Journal of Dental Surgery, is one of the most deservedly popular periodicals in existence—not alone with the entire profession, but with the entire public."—*Observer.*

"We are exceedingly glad to find that a journal is at length established, having for its particular object Dental Surgery. Every one must be aware of the importance of the subject, and every thinking person has regretted, that amidst the many medical scientific works which have issued of late years from the press, that none had been exclusively devoted to a branch of medical science of such importance to the comfort, the convenience, and the health of mankind. Perhaps there is no branch of surgery that has undergone greater improvement, or made more rapid strides to perfection than that of the teeth; and we have long wanted a journal as a record of these improvements, and of the curious cases of dental surgery which are daily occurring. This desideratum promises to be completely supplied by The British Quarterly Journal of Dental Surgery. Of the importance of this subject none can doubt, whether the teeth are considered as preliminary adjuncts to digestion, as adding to the graces of eloquence in public and private life, or as an essential element to personal beauty. With these objects in view, it is the intention to consider the knowledge of the anatomy and physiology of the teeth, as an integral part of the human frame; to give an account of the various diseases and accidents to which they are liable, and of the means of cure; and likewise to point out the best means of substitution in case of their loss. There are, in the present number, details of some very curious cases, with the methods which have been successfully adopted for their cure; and, also, a very clever paper on mechanical dentricity. These objects, carried out with the same ability which characterises this first part, will render the treatment of dental surgery one of the most useful practical books in the science of anatomy."—*Era, April* 9.

"This is a new periodical devoted to the interests of the surgeon-dentists of this country, and designed particularly to render their body more respectable, by making it imperative on its members that they shall undergo a professional examination before a competent board of gentlemen, whose license or diploma shall be the distinguishing mark between the proficient practitioner and the unprincipled charlatan. This is a desideratum, as dental operations, if unskilfully performed, may be productive of constant misery and inconvenience, The American dentists have been the first to do themselves justice, by instituting a 'Faculty of Dentists,' and publishing lists of their qualified members, the rates of fees, &c., &c., and by a monthly periodical devoted to subjects connected with their profession, and to expose the tricks and impositions of mere *empirical* practitioners. We think the English dentists may congratulate themselves, that by means of this talented journal, and the agitation now going on in the metropolis, they will also, in no very distant period of time, assume a more important position than they now hold. We certainly think that even persons not interested in the main object of the periodical, may yet find sufficient general information to compensate for perusing it."—*Midland Counties Herald.*

"This periodical promises to be extremely useful, and we heartily wish it success. We take the liberty of recommending its being made as *practical* as possible. The opening article a 'Review of Dental Surgery.' has the fault of being at once dull and didactic. Most of the other papers are practical and communicate much information. It is to be lamented, that, as yet, the surgeon-dentists have not been formed into a Faculty. At present any quack sets up as a tooth-doctor, and the injury thus rendered to the public is incalculable. We should add, that this periodical is enriched with lithographic and other engravings."—*Illustrated Times.*

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BRITISH QUARTERLY JOURNAL

OF

DENTAL SURGERY.

VOL. I.—No. II.—JUNE 30th, 1843.

NEW MEDICAL BILL, AND SURGEON DENTISTS.

THE members of the profession are looking with great anxiety, for the proposed measure of Sir James Graham, on the subject of Medical Reform. Nor can the legislature interfere on any point more legitimately than on one which will erect in society a barrier against the inroads of the remorseless plunderings of the unprincipled charlatan. A system of qualification, by education, and careful examination, is already, in deference to public opinion, diffusing itself throughout the various grades of medical practice; and for the future the public will, through the instrumentality of the Pharmaceutical Society, be enabled to protect itself, in a great measure, against the danger of receiving drugs from the hands of the ignorant and untaught druggist. Why should not the educated Dentist be protected? Or, rather, why, amid all these improvements in our social economy, is the public still to be left to the mercy of ignorant and dangerous pretenders to the art of dentistry? We assert that no branch of the "healing art" is of more importance to the health of the people, nor is there any portion of surgical practice, in which there are so many dangerous, if not fatal, errors committed. In the country districts the art is practised principally by druggists, and in many places by cobblers, and barbers, who have joined it to their own crafts.

The records of private practice throughout the land give evidence of numerous cases of disease of the bones

of the face, and of injuries and mutilations which have followed the malpraxes of these men.

In the metropolis, and in many large cities, the public are deceived by the puffing pretensions of *soi disant* Dentists, who, aware of the poverty of our legal enactments on the subject, fearlessly plunder the unwary, and bring disgrace upon the whole of the profession.

There must be a College of Dental Surgeons,—the credit of the profession demands it. There must be a definite curriculum of education, and a subsequent rigid examination,—the safety of the public requires it! For the future no Dentist ought to be admitted into the confidence of the public, who cannot produce his diploma from a Dental College.

We lament, however, that the government at present has no intention of assisting us, or forwarding our views. The following letter, in answer to one written by ourselves, requesting information, will at once prove this:

"*Whitehall, May 4th*, 1843.

"Sir,

"I am directed by Sir James Graham, to state, in reply to your note of the 3rd, that it is not his intention at present, to introduce into a Medical Bill such a clause as you allude to.

"I am, Sir,
"Your obedient Servant,
"D. O'Brien,
"*Priv. Sec.*"

We feel assured, however, that ere long—if we are true to ourselves, the government will see the necessity, as well as the policy of extending its protection over this important branch of Surgery.

TOOTHACHE.—Severe attacks of toothache are often experienced by pregnant women, but no operation should be performed, however urgent the symptoms; the pain and inflammation should be relieved by leeches to the gums, stimulants, and anodynes. Creosote sometimes does good. In a case which recently occurred, violent toothache took place, without any obvious cause, a few days before the period of quickening, and the pain ceased the instant the movements of the child were felt.—*Medical Times.*

RECEPTION OF OUR JOURNAL IN AMERICA.

When we first determined upon the publication of "The British Quarterly Journal of Dental Surgery," we entered upon our labours, fully aware of the difficulties of our position. We were resolved to expose to the utmost the nefarious practices of the daring empiric, and to warn the public against the system of wholesale plunder hitherto pursued in this country. We knew well that we should have to encounter the sneers and slanders of the disappointed quack. Let it be so,—the slanders of such men are the richest commendations.

But this was not all, we knew well that even among the higher walks of our profession we should have to encounter, in many instances, either open and avowed opposition, resulting from a dread of *wholesome censorship*, or the cold indifference of apathetic neglect. We cared not for the former,—an honest opponent is not to be dreaded, and an open avowal of hostility, while it would more largely excite ourselves to active exertion, would also stimulate, on the part of the public, and the whole profession, a spirit of healthy inquiry. But we confess that we *did* fear the *apathy* of our professional brethren. We knew that some, who from their age and experience, were entitled to a high rank in the art, had passed the days of youthful enthusiasm, and, amid the bustle of practice, and the harmonious music of the plenteous fees, had neither time nor inclination for literature; or, perhaps, looked with supreme contempt upon the efforts of those who sought to raise the profession to its proper position. There is too, in our profession, as well as in all others, an aristocratic self-assumption of rank and power on the part of many who have, to a certain extent, succeeded in attaining what is termed "*good practice*," which too often prevents that union of interests, and that harmony of enterprise, which are so necessary to the welfare of any community, whether social, political, or scientific. To this class no publication can be perfectly welcome, unless it ministers to their peculiar views, or issues from the pens of a recognised "set." To such narrow-minded practitioners there are, however, many noble exceptions; we could, were it not invidious, point to many, who themselves eminent in the philosophy and mechanism of

their art, are the first to foster rising talent among the junior members of the profession.

Knowing then how much we had to dread of opposition or neglect, we fully expected that months of severe and laborious struggling would be necessary, before our little publication would win its way into the notice and esteem of our brethren. We had determined to persevere in our undertaking under *any circumstances*, but still we fully prepared ourselves for pecuniary losses, and bitter opposition. With such anticipations, how sweet then has been our triumphant success; a success marked by the teeming congratulations of our friends in all parts of the British Empire, as well as by the immense sale of the journal,—a sale unprecedented in the history of any periodical, devoted exclusively, as ours is, to one branch of science.

Nor has "The British Quarterly Journal of Dental Surgery" confined its circulation to the *British* dominions, it has found its way to America, and has been received with a welcome worthy the high and noble minds which there adorn our profession. We have received from Dr. Eleazer Parmly, of New York, one of the founders of the American Society of Dental Surgery—a letter of congratulation, in which that eminent practitioner says: "The issue of the first number of your Dental Journal which has just reached our city, through the booksellers, I regard as fully equivalent to the most formal introduction to all your professional brethren, *not only in America*, but *in all countries* where the *English language is known and cherished*. Although you have the courtesy to acknowledge in your preface that your brethren in the United States have led the way, like the pioneers of our receding forests, in establishing a periodical devoted to our favourite science, yet you may at least congratulate yourselves in being the first to effect that noble object in the land of our fathers, and, if I mistake not, *on the Eastern Continent*."

We are quite sure that our English brethren will regard the cordial congratulations of such men as Dr. Eleazer Parmly, as a happy omen, and we trust that the hope he expresses in another part of his letter, will, through our humble efforts, be yet realised in the establishment of a "British National Society of Dental Surgeons," which "will extend its fostering protection to that work which you have so nobly undertaken. I feel

assured," continues the Doctor, "that these two journals, and these distinct fraternal associations, instead of being angry rivals, will become mutual coadjutors in the cause of science and humanity."

To our brethren we must appeal for strength and succour. Our journal is established for the purpose of elevating to its proper place a much neglected art,—to call forth rising talent—to crush empiricism—to disarm tyranny, and, above all, to diffuse through our community in the most condensed form, the results of experience, and the discoveries of science. Let the result be what it may, we shall fearlessly discharge our duty.

REGENERATION OF THE TEETH AFTER CARIES OF THE UPPER JAW-BONE.

A boy, eleven years old, was, after the suppression of tinea, affected with a painful swelling of the upper jaw-bone of the right side; the teeth became loose, and numerous abscesses formed, through which a probe could be passed into the antrum. The right nasal cavity was compressed by the swelling of the bone, and the eye forcibly pushed upwards. The canine and first molar teeth being extracted, and an abscess at the internal angle of the eye opened, there was an abundant purulent discharge, which was followed by the exfoliation of the os unguis, and of part of the processus nasalis maxill. superior; the abscesses in the gums discharged also osseous fragments. In this manner seventy-two pieces of bone were exfoliated; their total weight was 126 grains, and they consisted of the alveolar process; the anterior and external paries, and the nasal process of the upper jaw bone; the os unguis, and the nasal bone of the right side. After four months, the ulcerations began to heal; the patient's general health improved; the swelling of the face subsided, and the eye regained its natural position; in this state he remained for eight months, when he was again attacked with pain in the posterior part of the alveolar process: and with -swelling of the gums; after an incision in the latter, the pain diminished; no pus was found; but within a few days, three molar teeth were protruded; and two months afterwards another appeared. Since that time the patient has enjoyed very good health; no more teeth have been formed, but the new ones have remained in good condition.—*Graefe u. Walther's Journ.*

REVIEW OF DENTAL SURGERY.

(*Continued from our last.*)

We shall not attempt to trace the progress of the healing art during the "middle ages" of darkness and superstition, when learning seemed for ever banished from the earth. Suffice it to say, that during that period the precepts of Hippocrates, and the writings of Galen, and of Ætius, continued to be the text books of such as paid any attention to the diseases of the mouth, and its contents. However, no improvement seems to have taken place in the art of dentistry, and but little mention is made of the subject, except in reference to the preparation of powders, elixirs, and electuaries, for preserving or cleaning the teeth. In the eleventh century an Arabian physician, called Albucasis, wrote on certain diseases of the teeth, and detailed the operations then known for the relief of the patient; but after this time, until about the sixteenth century, the practice of medicine and surgery gradually merged into the hands of ignorant pretenders, or dreaming alchemists. The first deceived the sick applicant by great claims to learning, and especially to astrological lore; while the latter, in their absurd search after "*the universal medicine*," neglected the observance and relief of present symptoms.

During the sixteenth century, however, a brighter era dawned upon the world. The advancement of sound and useful learning soon began to disperse the strange illusions of the alchemists, and from the ashes of their furnaces sprang forth ere long, a nobler science, destined in our day to enlarge, to an incredible extent, the sphere of human power and knowledge.

Nor in the revival of learning, and the progression of medical science, was *dentistry* forgotten. During the sixteenth century, and especially in the latter part of that period, no less than thirty-eight treatises or works are known to have been published on the diseases of the mouth, and the adjacent parts, during the dentition of infants; and although, of course, owing to the imperfect state of physiological knowledge in those days, these works contain many crude conjectures, and positive errors, yet their publication gives evidence of increased attention to an important and hitherto much neglected subject.

In 1728 the first attempt to methodise and systemise the dental art was made by M. Fouchard, of Paris. He published a work on dentistry in two volumes, 12mo, in which he treated it as a distinct branch of medical science, and hence he has since been designated the "Father of Dentists." This treatise, entitled "*Le Chirurgien Dentiste*," although written under great disadvantages, owing to the paucity of materials from which to collect his data, gives evidence of much laborious scientific research. In fact its author has treated, at great length, and in the spirit of true philosophy, on nearly every subject necessary to be embraced within the professional education of the dental surgeon. Before the time of Fouchard the organism of the teeth seems to have been completely neglected; and the dental *practicien*, in his treatment and operations, regarded them merely mechanically, ignorant or forgetful of the fact that they, equally with other portions of the human frame, involved organised structures and living complex tissues. M. Fouchard, however, directed the attention of the world to the necessity of a thorough investigation, by the surgeon dentist, of the anatomical, physiological, and pathological history of, and construction of these organs, not merely in reference to their individual treatment, but also as forming, with the adjacent parts, useful indicators of the general health of the system. We have, in the preceding part of this paper, referred to the treatise by Hippocrates, "*De dentitione*," in which the the father of medicine has drawn a number of useful prognoses. In modern days, incited by the labours of Fouchard, Dental Surgeons have pursued the same plan, and with greater success, on account of their greater means of observation, and the vast improvements in anatomical and physiological knowledge. Among these we find pre-eminent the surgeon Delabarre,—to whom our branch of the profession owes much. This writer affirms that by an inspection of the teeth we may ascertain the general state of the constitution; and in this remark he is borne out by some of the best dental physiologists of the present day. However, Delabarre does not confine his observations to the teeth alone; the adjacent parts,—the gums, the tongue, and even the fluids of the mouth are included in the examination. Nor is this all; by a careful inspection of the contents of the cavity of the mouth, and especially of the teeth, not only may the present state of the

health be readily ascertained, but also the *innate* constitution of the individual. Thus the teeth will indicate the health or weakness of those functions which supplied their organism during ossification; for even the constitutional imperfections of the parents, and of the nurse, will affect their regularity and permanency. We are perfectly aware that in some families a peculiar constructure of the teeth is observable in successive generations; and so much do the beauty and firmness of those organs depend upon the health of the mother, that Delabarre recommends those whose teeth are constitutionally bad, to abstain from suckling, and to entrust this important office to a nurse, having good teeth, for by this means he asserts that a bad denture will not be a necessary heritage.

Professor Baumes, too, in enumerating the necessary qualities of a good nurse, expressly states, among other things indicative of sound constitutional health, that "her eyes should be lively and animated; her hair and eye-brows brown or light-coloured, *her lips red, her teeth sound and good, her gums hard, and well-coloured;*" and Delabarre tells us that the inspection of the breasts of a nurse enables us *merely* to judge of the devolopment of the gland, and the quality of the milk as it *then* is, which may be good to day, and in a short time become bad. In our choice of that functionary we ought ever to examine, with the utmost scrupulosity, the cavity of the mouth, and its important contents, for "by that means alone can the physician ascertain whether the woman owes the beautiful carnation she possesses, to her parents, or to a skilful regimen." "I have collected," says Delabarre, "some valuable facts, upon this subject, and I have met with some women, who for a long time have had a great interest in keeping out of view, that they had not always enjoyed as good health as they seemed to possess at the moment when they were soliciting employment. I would not have it thought that I suppose every woman having good teeth, is indubitably a good nurse, for even the most perfect constitution is susceptible of being deteriorated. We see, therefore, that to judge correctly of the past and present state of health, it is requisite to collect all the signs that can lead to this knowledge; and to obtain it, it is also requisite to be for a considerable time practised in these sorts of researches; for as a beautiful carnation may mislead the judgment, so may handsome teeth be mistaken for good ones, which is not always the case."

The above remarks of the philosophic Delabarre, are confirmed by every day's experience among practical and experienced dentists. Thus, in subjects whose constitution has a tendency to phthisis pulmonalis, we frequently find teeth of irreproachable form and whiteness, with a pearly gloss upon the enamel, which would indicate, to an inexperienced eye, great durability and health: and yet these teeth during fever, or any disease which has a tendency to impair the fluids of the body, almost immediately become carious, and crumble to pieces.

We are perfectly aware that at one time, to advocate the necessity of sound anatomical knowledge, as an ingredient in the education of a dentist, would have drawn down the ridicule of the medical profession; and even some who might be expected from their high attainments and liberal education, to become the patrons and abettors of an enlarged curriculum of study, seemed to throw obstacles in the way, by assuming the improbability or impossibility of combining philosophy with the mechanism of dentistry. Thus the celebrated John Hunter, in 1778, says, "the diseases which may arise in consequence of those of the teeth, are various: such as abscesses, carious bones, &c., many of which, although proceeding *originally* from the teeth, are *more* the object of the *surgeon* than the dentist, who will find himself as much at a *loss* in such cases, as if the abscesses or carious bones were in the leg or any other distant part." And further, "all the diseases of the teeth which are common to them with other parts of the body, should be put under the management of the physician or surgeon,—but those which are *peculiar to the teeth*, and their connections, belong properly to the dentist."

That the amount of anatomical knowledge among dentists in the days of John Hunter was exceedingly small, we do not doubt: thus, in his "Natural History of the Teeth," that eminent physiologist says in his introductory remarks, "I shall therefore confide myself to the diseases of the teeth, gums, and alveolar processes; which parts having a peculiar connection, their diseases fall properly within the province of the dentist. I shall, also, purposely avoid entering into common surgery; not to lead the dentist *beyond his depth*, and to matters of which it is to be supposed he has not acquired a competent knowledge." This was indeed a biting satire, and a reproach

to the dentists of John Hunter's day. However, its influence upon the minds of the profession was soon felt; and, although we fear it was meant to discourage, it acted as a powerful stimulus to exertion, and laid the surest foundation of that eminence in the literature, as well as in the practical details of the art, to which so many succeeding dentists have risen.

(To be continued.)

DENTAL CARIES.

This affection, so lamentable on account of the violent pain which it occasions, and its ordinary result the premature loss of the teeth, has numerous causes. But the recent labours of several pathologists authorize the conclusion, that in most cases caries may be ascribed to the presence of the acid liquid secreted by the glands of the gums, about the neck of the teeth. Experiments conducted with care, have shown that all the other secretions from the mouth, have a more or less decided alkaline character. This liquid is distinguished from them by a constant acidity which seems to acquire more activity in those chronic affections of the stomach, manifested by Anorexia, and weakness of the digestive organs. Nothing is more common, in fact, than the loss of teeth, after those long indispositions which can hardly be named diseases. It is rare, however, that the inferior incisors are altered, while the superior, on the contrary, are very subject to this change. Does not this remarkable fact point out that caries would be still more frequent were it not for the abundant secretion of saliva of an alkaline character. The inferior incisores, constantly bathed by the saliva, do not experience the effects produced by the acid secretion from the gums, to the same degree as the others, as the saliva by its presence neutralizes the acidity of this liquid. The useful conclusion to be drawn from this fact is, that in the daily attention bestowed upon the teeth, nothing is more clearly indicated than the use of dentifrices, in which the alkaline principle predominates.

Archives de la Medecine Belge.

ON THE OPERATION FOR HARE-LIP, COMPLICATED WITH PROJECTION OF THE INTERMAXILLARY BONES.

BY M. BLANDIN,

Professor of Operative Medicine at the Faculty of Paris.

Of all the difficulties which the operation for hare-lip sometimes presents, none can be compared with those which result from a considerable projection of the intermaxillary bones In such cases, the attention of the surgeon must necessarily be directed to two objects quite distinct from each other,—viz. the suppression of the anormal projection of the middle portion of the dental arch, and the uniting of the upper lip. The first point constitutes the most important part of the operation, of which it is the indispensable preliminary, and the greater or less success of the restoration will depend on the degree of perfection applied to its accomplishment. This sufficiently explains the interest which attaches to this branch of science, and the care with which surgeons have applied themselves, to render the application of it more satisfactory. Nevertheless, the methods we possessed hitherto still left a desideratum, so that new improvements had for a long time appeared to us necessary to raise the cure of hare-lip to the height at which the art of restoration is now arrived.

Three different methods have been proposed by authors, to get rid of the median projection of the palate in complicated hare-lip. That of Franco, which consists in cutting off the bony prominence; that of Désault, in which this part is merely driven back by the application to it of sustained compression; lastly that of M. Gensoul, in which the same result is obtained, but instantaneously, by driving back suddenly the intermaxillary bones and fracturing the bony parts that support them. Let us take a rapid review of these three methods, that we may throw a light on the disadvantages inherent in each of them, and which have not escaped the observation of practitioners.

The excision of the intermaxillary bones involves in the first place the sacrifice of the upper incisor teeth; but that is its least evil; it produces besides, on the anterior part of the vault of the palate, a considerable loss of substance, from which result ulteriorly; first, a

transverse narrowing of this vault, and such a contraction in the same direction of the superior dental arch, that it corresponds no longer to the inferior: second, a retropression of the upper lip which gives a greater projection to the base of the nose, and a disagreeable expression to the countenance. Simple compression, inapplicable to those cases where the projection is considerable, is a source of restraint and pain which many patients cannot bear. On the other hand the action of the compressive force on the front teeth, often loosens them so much that they fall out: lastly, and this is an important point, it almost always leaves after it a projection of the teeth and dental arch, which the progress of the patient's growth but incompletely removes.

The violence used in fracturing the osseous support of the intermaxillary bones, necessarily communicates a very considerable shock to the whole septum of the nasal fossæ. Its action ordinarily confined to this septum may sometimes extend to the neighbouring parts; reach for example the ethmoid and break the cribreform plate, that is to say, the base of the cranium itself; so that although the method of operating, which requires such force, allows the whole dental arch to be preserved intact, and the union of the solution of continuity to be proceeded to without delay, it will be readily conceived that most surgeons have evinced a repugnance to it, and that it has scarcely been practised since its first introduction. M. Gensoul's method is, nevertheless, a real progress, uniting as it does, the celerity of Franco's plan with the advantage which Désault sought to obtain by simple compression, viz: the integrity of the palate and dental arch. Gaining these two ends, we consider the perfection of such an operation, and all we blamed in the preceeding was the means used to obtain so desirable a result. Well convinced that the septum of the nasal fossæ displaced in front in the malformation which occupies our attention, is the true support of the intermaxillary bones, and the only obstacle to their retropulsion, we think with M. Gensoul that it is on this part we should act in commencing the operation, and since the septum has assumed a greater extent in its autero posterior direction than in the normal state, it ought to suffice to cut away a portion of it behind and above the incisive bones, in order to make these return to their place.

This is in fact what we have attempted, first, on some dried preparations offering examples of the malformation in question, afterwards on the subject, and lastly, on the child whose case we report farther on. It is behind and above the incisive bones that we make the required section, we carry away from the septum, a triangular portion, the base of which is directed downward. For this purpose we make use of scissors of a strength proportioned to the age of the patient. The point of the section (in the form of a V) ought to advance very high into the thickness of the cartilage of the septum, so as perfectly to ensure the mobility of the osseous projection and its complete retropulsion. A few blood vessels will be opened in this first part of the operation, but they are not likely as we have found to bleed much; others bruised by the scissors will not bleed at all; at all events by raising the lip and bony part that adheres to it, it will be easy to tie, twist, or cauterize these vessels if the hemorrhage continues. However the case may be, we recommend to the surgeon to put off to the next day the quickening and uniting of the lip. By so doing he divests himself of all serious apprehensions on the score of hemorrhage, and if it should supervene notwithstanding his precautions, he would be no more embarrassed to remedy it than at the moment of the operation. It would be otherwise, if he had proceeded immediately to unite the lip, which might be greatly inconvenienced by the means directed against the bleeding; for, to apply them properly it might even become necessary to disunite the parts, which would be a serious evil.

At first sight, in performing this operation, a fear is excited lest the incisive bones suffer in their nutrition by being isolated from the septum, their natural support, as we have said, and through which they receive their vessels. But a little reflection shows us that this fear is without good foundation, for, adhering to the upper lip or its middle lobe, the intermaxillary bones receive well developed vessels from that quarter.

Immediately after this excision, the middle projecting portion of the palate and upper lip, having become moveable, yields to the slightest pressure, and is readily placed backwards in its natural position, where it is maintained by an adhesive bandage, applied transversely upon the upper lip. It is true that as this retropulsion

of the incisive bones is a true hinge movement, these bones and the teeth which they support have a tendency to turn a little too much behind, so that it is indispensable during some time to ensure their good direction by fixing the incisor teeth with the molar by means of silver wire, or by keeping under the palate a metallic plate moulded exactly to its vault and fixed laterally upon the molar teeth. I am presuming, of course, that these teeth exist, and that the operation has not been attempted on a child less than two years of age.

CASE.

Double hare-lip, complicated, first, with division of the vault and velum palati, double in front and simple behind; second, with projection in front of the intermaxillary bone .

Fleury (Amant), aged seven years, of a very good constitution, was brought to the Hotel Dieu, on the 7th of October, and placed under my care. The following were the characters of the malformation of which he was the subject. The upper lip was doubly divided as high up as the nostrils; the palatine vault presented a fissure also double in front, but simple behind; the velum palati participated in the median separation of the posterior part of the hard palate. The two lines of the division of the upper lip followed the direction of the edges of the sub-nasal depression. The double anterior fissure of the palate, isolated from the superior maxillary bones their intermaxillary epiphyses, and reproduced in this child a conformation which is the normal state of most of the mammiferæ placed below man in the organic scale.

The septum of the nasal fossæ was free behind at its inferior border, whilst in front it rested on the osseous tubercle formed by the union of the intermaxillary bones. This septum thus wanting support below, had been driven downward and forward by the developement of the base of the cranium. The intermaxillary bones extended considerably in front of the superior maxillary bones and carried only two incisor teeth; the middle lobe of the upper lip adhered to the anterior face of the intermaxillaries, and by dragging upon the nose flattened it considerably. This vice of conformation was not only the cause of a serious deformity of the face in general, and in particular of the lip to which it gave the form of a bird's beak, but it rendered mastication and degluti-

tion very difficult, and the articulation of intelligible sounds quite impossible. Consequently, on the one hand there being no doubt of the propriety of operating, and on the other, the age of the child offering circumstances altogether favourable; the operation was fixed for the 12th of October, and was proceeded to in the following manner.

The child was laid upon a table furnished with a mattrass, his head was moderately raised and fixed by an assistant, while the body and hands were kept at rest by other persons placed at the sides. I next placed myself on the right of the little patient, and causing the mouth to be opened widely, I raised with my left hand the median tubercle of the upper lip; then with my right, armed with strong scissors, I cut away from the septum nasi, immediately behind the projection of the intermaxillary bones, a triangular portion, the base of which was turned downwards and the apex, directed upwards, reached nearly to the bridge of the nose. For this, two sections were made in the septum, one anterior vertical, and another posterior, directed obliquely upward and forward. A smart bleeding furnished by an artery of the septum was immediately stopped by the torsion of this vessel. As soon as this part of the operation was finished, the intermaxillary bones became moveable, could be carried backward and naturally placed themselves on a level with the rest of the arch, taking with them the middle lobe of the upper lip which adhered to them. I judged it prudent to put off to another day the quickening and suture of the double fissure of the lip, in order to have every desirable facility for staunching the hemorrhage from the septum, should it, as it has sometimes happened, reappear. Two days later, October 14th, I quickened at the same time the two fissures of the upper lip; then, having passed three long german pins through the lateral parts of the lip, and the fleshy lobe which separated them, I finished the suture of the wound according to the ordinary rules. The patient was afterwards taken back to his bed, and fed during four days only, with milk and broth. On the fourth day after the operation the pins were removed. The wound had united in all its parts. Agglutinative bandages fixed to the patient's night cap, were nevertheless applied to support the cicatrix, and continued up to the tenth day. October 29th., fifteen days after the operation, the cicatrix is firm and very little apparent;

the upper lip is not at all prominent; the lobe of the nose, which was slightly drawn downward for a few days after the operation, has resumed its natural appearance. The intermaxillary tubercle preserves its mobility, and has a tendency to turn a little backward, so that the two incisor teeth which belong to it are turned downward, and a little backward. A silver plate moulded to the arch of the palate, bearing, by a raised border on the incisor teeth, and fixed by means of two hooks on the first molar, suffice to correct this deviation. This plate is to be continued until the fissure of the palate shall have undergone a sufficient contraction, and the intermaxillary bones have become perfectly fixed by the superior maxillaries.

ROYAL ACADEMY OF MEDICINE OF PARIS.

SESSION OF SEPTEMBER 13TH, 1842.

President.—M. FOUQUIER.

M. HUGUIER presented a young girl, aged sixteen years, on whom he had practised amputation of the superior maxillary bone, the malar bone, and the os unguis, of the right side, for a cellular exostosis of the antrum maxillare. Six years ago, this young girl fell off a chair, and a few months afterwards, she experienced violent pains in the molar teeth, corresponding with the maxillary sinus. At a later period a hard tumour appeared in the fossa canina, and from that moment the cheek became the seat of frequent fluxions. The tumour increased in size, and shortly the palate, the alveolar processes, and the malar bone, were invaded by the disease. On the 15th of September last, when the patient entered the Hopital des Cliniques, the tumour, uniformly hard, had acquired the size of a large orange. It had thrown the nose to the right, displaced the eye upward and forward, and flattened its inferior surface; sight was impaired, and the malar bone had been driven upward and outward, as well as the zygomatic arch. The nasal fossa of the corresponding side was entirely obliterated by the tumour, which compressed and threw the septum to the left. The right portion of the palate formed a considerable tumour in the interior of the mouth. The alveolar border, driven downward and forward, was tumefied, and de-

prived of most of the teeth of the correspondiug side, and the mouth was carried upward and outward, by the projection which the tumour formed. The patient experienced no pain whatever, and the tumour presented no fluctuation. The affection was considered as an osteosarconia, but doubts were nevertheless entertained concerning its nature, on account of the youth, good bodily condition, and healthy appearance of the patient.

Three days after her being presented to the Academy, September 22nd, she was operated upon bv M. Huguier in the following manner:—an incision was made through the whole thickness of the cheek, from the anterior and inferior part of the zygomatic process, to the free border of the upper lip, four lines within the corresponding commissure, and not upon the commissure, in order on the one hand to avoid dividing the anterior extremity of Steno's duct, and on the other hand to preserve from injury the filaments of the facial nerve. The incision made in this direction, enabled the operator to proceed in a line parallel to the dissection of these filaments. All the soft parts which covered the tumour, and the nasomaxillary region were then dissected; afterwards the ala nasi was entirely detached from the anterior border of the ascending branch of the maxillary bone, and the malar bone was laid bare in a similar manner, as well as the inferior border of the base of the orbit. This vast flap was raised and thrown back upon the forehead, and the external and inferior border of the incision was detached and turned downward and outward. Several arteries were tied; the malar bone was then separated from the zygomatic process of the temporal, by the saw, and the external ascending process cut with the gouge and mallet. A transverse section separated the maxillary from the palate bone, and a longitudinal one made with the saw, separated the superior maxillary bone from its fellow on the opposite side. The tumour thus freed on all sides, was firmly grasped and taken out. The remains of it were removed with the assistance of the gouge and mallet, and lastly, the actual cautery was applied to the whole extent of the wound. During the first days that followed the operation, not the least accident occurred, but on the 27th day there supervened an erysyphelas, which somewhat retarded the cure. At this day the reestablishment is complete, and the deformity resulting from this operation is not strikingly perceptible.

EXPOSURE OF QUACKS AND QUACKERY.

By J. L. Levison, Esq., S. D., Birmingham.

"Nothing extenuate, nor aught set down
In malice."

A sense of duty, rather than any natural inclination to find fault, is the motive which prompts us to undertake this self-imposed task, of exposing the doings of Quacks and the great injury of Quackery; and painful as such an attempt must be (as most men would rather praise than denounce), yet we shall proceed in a firm but honest manner—scorning anything like personal attacks, but still not morbidly annoying ourselves, if any one chooses to fit on our *pattern* cap, even if afterwards he should, Jupiter-like, hurl at us his thunderbolts of ire, for having made the article. We do not, however, intend to "run a muck and tilt at all we meet," but being conscious that we are engaged in a right cause, we shall not hesitate to place quacks in such a light, that all may see that ignorance and avarice are their presiding genii, and credulity the mental condition of their victims. Thus the quack is a person who deals in extravagant professions, without either the power or the wish to realise them—he is one who is never troubled with qualms of conscience, or in any way annoyed with principles of integrity. Vulgar notions of even-handed justice he scorns. To him the *end* justifies the *means*—and in his dealings, *self*, in its most saturated form, is the end he constantly keeps in view, and he is alike indifferent what injury or inconvenience he induces. If a pseudo-practitioner in medicine, he never troubles himself about ruined constitutions; and if a dentist, the fractured jaws, broken, or ill-fitted teeth, producing the greatest suffering, never disturbs his equanimity. And in both cases, money, money, money, engrosses every thought, and to possess it every latent feeling of goodness is ultimately rendered callous. He entered on his career for money—he bears with stoicism "the curses loud and deep" of his victims, and like some sanguinary priest of Moloch, looks on at last at the moral writhing, with features so placid and unmoved, as if he were contemplating some scene that habit had rendered agreeable. The quack therefore is indifferent to fame—he hates a book-worm, or any man that knows anything. He thinks that there is nothing like gold—this he worships with

all his heart, and with all his soul—he bows down to it, and it becomes to him an object worthy of intense adoration. Every one of his senses is morbidly affected by it—yellow is the only colour that he recognises, and his power of vision is still so very great, that he is *clair-voyant*, and can look into the breeches pocket of his patient, and estimate the exact value of the contents of his purse, and with a peculiar power of accommodation to circumstance, his fees are not in the ratio of his services, but to the means of the unfortunate being who consults him; and with something *vampirish* he sucks until all the gold is gone, and then——!

Besides this state of the organs of sight in the quack, his powers of hearing are equally astonishing—he tells the kind of metal which an applicant may be possessed of, by the sounds it may give forth from accidental collision; silver affects him not, but gold, when it chinks, is regarded by him as the sweetest melody—its tones produce certain peculiar sensations, such as an "itching palm!" His heart's action is increased, and there is induced a state of feverish eagerness, which is often by the unlearned regarded as the zeal of the doctor to do them good. Golden fees are as wonderful in their effects, as the *lethe* of the ancients—they drown "the still small voice," and create such state of beatitude, that bright visions float before the eyes, so that he wh is thus affected beholds not the injury his cupidity inflicts. If he is at all disturbed, it is from his over-eagerness for wealth—his very dreams are haunted with golden chains, diamond rings, and pins; &c., and very probably these symptoms are followed by certain throes of ostentation, and he contemplates with a chuckl ng sensation, an equipage and gaudy livery, all of which he deems more or less essential to his position and consequence in the ratio of his ignorance and his professional incapacity. To condense our definition of a quack, he is a mean, ignorant, boasting personage, who trusts to an unblushing impudence, and showy dress, and substitutes them for information and intellectual qualifications. Although this sketch will be admitted as a correct delineation of a quack, yet it is not in accordance with the generally received opinion — the term being applied to any one, not a member of the College of Physicians or Surgeons, or a licentiate of the Apothecaries' Company. But how absurd such a definition, inasmuch as there are many highly gifted men (practising as dentists for example) who are not members of any such association, but who

nevertheless *do all they profess to do, and do it in accordance with scientific principles and sound practical data!* Whilst it is also a matter of notoriety, that many a quack may be found possessing a diploma, and whose quackey consists more in manner than in actions—who trusts to a leaned jargon of technicals, instead of using the experience of the best observers who have written on diseases; such a one never reflects on the case before him, whether it is similar or different to any he has read about—what difference there ought to be in the treatment, modified by the *age*, *sex*, *temperament*, and *occupation* of the patient. We recollect among many instances of the latter species of charlatanary one which occurred some years since

A *learned* practitioner, who trusted to the talismanic influence of technical phraseology, was consulted by a no very erudite farmer, and the doctor listened to his tale of misery with very profound attention—corrugating his brows, and drawing a deep inspiration, he said to the "tiller of the soil," "My good friend, you have an incipient inflammation in the epigastric region, which must be subdued," &c. At this horrible sentence, which the poor farmer did not understand, he looked terror-stricken, and begged the doctor to do what he could to save his life, &c. The effect of such a style is incalculable. It has the double consequence of *flabbergasting* a patient (to use a modern technical) and of elevating the pratitioner as one of the especial favourites of Esculapius, to whom alone he has entrusted the mystical language by which diseases may be overcome, &c.

And before the conclusion of this paper, we shall show that many dental practitioners, who would blush to be confounded with quacks, and who *may* be members of the College of Surgeons, still have recourse to practices which science proves to be injurious, and which can only find an excuse in cupidity.* Hence we repeat our definition, that to be a quack a person must either *positively* profess to do what he knows it is impossible to realise—or it is *negatively* manifested by a mysterious manner, which tends to magnify the affection, so as to make the cure appear the more wonderful, and the practitioner proportionably a most profound personage. But it is now time to inquire into the origin of quackery and then show its wide-spread influence and operations, and how it can be remedied.

Quackery originates in a twofold cause. The natural

* Using amalgams and alloys for stopping teeth.

love of the marvellous, and a very general ignorance on the subjects which are especially made its fruitful sources of profit. A slight reflection will prove that there exists an instinctive love of the marvellous, which though essential to the human mind, is liable to render any one, in whom it is strongly experienced, a dupe to the crafty and unprincipled. To affect the credulity of such a person, he must be addressed in language of exaggeration. Simple, plain, unadorned truth, though in itself dignified, is not sufficiently stimulating. The more high sounding the pretensions, the more the "grand discovery" or "great promises" are marshalled by gaudy and blustering heralds, the more it affects, and the more certain is its reception. Mystery in language, and that most "*modest assurance*," which boastingly speaks of its own merits, as of a superlative kind, are sure to win. It is in the moral world, like in the physical. "There must be some fire amidst the mass of smoke," at least so conclude the poor victims who swallow the bait which quackery offers, and who find too late that they have been hooked to their own destruction.

The success of the quack is therefore owing to the power which credulity exerts over human character, and to "that innate principle of *self-preservation*, which is entwined around the human heart, and everything addressed to it is eagerly seized, and too often swallowed without any other consideration than the strength of its pretensions.*" Hence whatever may be the boldness of the assertions—whether to renovate the worn-out frame of the debauchee—give new lungs to the confirmed consumptive person, or to supply new teeth that shall put Nature to the blush, as the "newly invented" are not only more beautiful but so wonderful, that they can be made to masticate without doing the food any injury, (though they may annoy some irritable *gourmand*, and drive him to the unpleasant alternative of removing "the warranted," and doing his *best* without them,) with many other astonishing et ceteras, which are seemingly believed in the inverse ratio of the impossibility, or extravagant boasting. Nay, more, so eager are the credulous to be influenced by bold and startling assertions, particularly if such assertions have a sprinkling of learning, and are given in such a confident manner, that the simple-hearted do not doubt their truthfulness, that we hear of

* From a very sensible anonymous pamphlet, published at Bath, on Quackery and its consequences.

the most preposterous assertions and most flagrant insults to one's common sense. An instance of this kind we gave on a former occasion,* where some impudent quacks promised in their advertisements, "to make rotten teeth come away, and *new teeth* to grow in their place," with the patent manure, yclept —— Tincture solely prepared by themselves, for the benefit of their fellow creatures, by which feeling they were prompted thus to give publicity to their "grand discovery." At all events, from the minute descriptions and extraordinary cases sworn to, in a pamphlet published by these "Picture Doctors; they either wish to enlighten the public, or show their own extreme modesty, by supposing such evidence necessary to ensure the *faith* of those who might otherwise be sceptical as to the efficacy of their miraculous drops.

There is something very amusing in all this; if persons were not injured in their pockets, and miserably disappointed to find that in their case "the rotten teeth" remained with all their previous unseemliness, making even beauty horrible to itself. But despite our anger, we cannot but admire the great ingenuity of some of the quacks, for if we believe their own accounts, we must laugh to scorn the common conjuror. The latter worthy, by his magical powers, only attempts to deceive the eye, and make the gaping crowd marvel at his wonderful tricks. But what are any *hocus-pocus* doings compared to the wonderful and astounding effects of "teeth growers." The conjuror honestly confesses that he merely performs certain tricks —our advertising wonder-working professors trick continually without any confessions. Her Blitz may astonish by his making plates dance; but our "teeth-growers" and "teeth renovators" manage better than this. The one rubs a tincture on the gums, some miraculous preparation (only known to himself) and *carious* teeth presently disappear, and mushroom-like, there springs up in their places a crop of new teeth, beautiful in colour, and ar ranged with the most perfect symmetry.

"Sure the pleasure is as great
Of being cheated as to cheat."

And we subsequently have to show the wonderful professions of the "teeth renovators," who are in the habit of overcoming the *vital* and *chemical* laws, and can render a carious tooth perfectly sound by their "inimitable" compounds. Some may affect to laugh at these things, but there is no accounting for taste. Nor probably ought the adver-

* See Levison's Practical Observations on the Teeth and Gums. Second edition, Chapter on Quackery.

tising philantrophists we have alluded to, be very angry at such sceptics, as it is not altogether their own faults—they being bitten with a love for science, and speak of such obsolete principles, as "honour," "respectability," "reputation," et cetera. But after all these *principles* may be of some use to those who have never made "wonderful discoveries," but are constrained to be such bunglers as to get rid of carious teeth by the file, or the forceps; and who can only exclude foreign agents from hollow teeth with gold or tin; or with something equally harmless. Nor should the "teeth growers" or "teeth renovators" be angry with us for making their doings known so extensively, as they are now likely to be in the pages of the British Quarterly Journal of Dental Surgery, although they have already published them, in their own fashion, without any interested motives of course. Who would venture to doubt that all "discoveries" that are regularly advertised, are intended exclusively for the public service, and if the benevolent and patriotic "sole inventors" receive any benefit, why they are not too proud "to pocket the affront," although they declare that pecuniary remuneration is altogether secondary with them. Many simple persons who have to study hard for the knowledge they obtain, may in their simplicity fancy that the "teeth growers," and "teeth renovators," have consumed the "midnight oil," in deep research in the *arcana* of Nature, and in the mysteries of science, but they would be sneeringly told by them "*that the 'discoveries' were made to them in a dream, or by some sudden inspiration, and that of the laws of nature they know nothing about, nor don't want!*" and that whilst they can benefit their own selves, without any such drudgery as book learning, they leave to others the ærial something called knowledge, whilst they are satisfied with the denser rewards of money! But with worldly wisdom, these *un-learned* gentlemen suit themselves to circumstances, and if they do not condescend to write anything in praise of their "wonderful discoveries," they will nevertheless, if the public seem so *obtuse* as to require their merits to be noticed, employ needy scribes "to write a book" for them, and they get the reward without the labour, or the mental drudgery. If a steam-engine could compose and write, it would do as well as a poor scholar, who is furnished with all the virtues of the "*newly-discovered*," and all the cases of its remarkable effects are told to him by his employer, and he only "gives to *airy nothings* a local habitation, and a name," no matter how purely ideal such cases may have been.

DENTISTS AND PHYSICIANS.

To the Editor of the British Quarterly Journal of Dental Surgery.

SIR,

I HAVE perused your excellent periodical with pleasure, and admire the spirit of candour and independence, by which the first number is characterised: the educated and scientific dentist must hail with satisfaction this important step towards a better state of things in this useful branch of surgery, as a legitimate source of communication of facts amongst its members; and also as a check to the vile impositions which are daily practised upon the public. I have for many years advocated the subdivision of labour in the profession generally; and the following case of local neuralgia will show the necessity of the educated dentist being consulted with the physician in all neuralgic affections of the fifth pair of nerves: the latter seldom or never examines the teeth, but hopelessly endeavours to effect a cure by constitutional remedies, &c.—frequently to the serious injury of the health of the patient. If you deem this worthy of insertion you would oblige your obedient servant,

London. F. M. P.

Mrs. M—. A lady, about twenty-two years of age, applied to me, in consequence of having suffered—for eight months, severe pain in the branches of the superior and inferior maxillary nerves, coming at first in irregular paroxysms: latterly however they were periodical, and invariably came on at nine o'clock, A. M. and at seven, P. M. The severity of the attack generally lasted about an hour. It rarely occurred at any other time with violence, unless the patient was suffering from indisposition or mental agitation. At the early part of her suffering, she was induced by the recommendation and persuasion of a friend, to apply brandy and salt, mustard poultices, &c., but without effect. She consulted a physician of the highest character, who ordered the various preparations of iron in combination with quinine, which was continued for two months, but failed to give relief. Belladonna was now prescribed, commencing with one grain night and morning; one hour before the paroxysm came on, leeches and blisters were applied to the temple, with fomentations of poppies and

camomile, with an increase of half-a-grain of belladonna at each dose, until three grains were taken twice a day. She now became so affected with sickness, vertigo, dimness of sight, &c., that this treatment was discontinued, and the ioduret of potass substituted, with the use of veratrine externally. These means were followed for six weeks without success. It was now suggested by a medical friend, that the disease possibly originated from diseased teeth. On examining the inferior maxilla on the left side, I perceived that the whole of the teeth from the canine to the dens sapientiæ were affected with caries, also the first and second molares in the superior maxilla, all of which were evidently producing considerable irritation in the surrounding parts. On these teeth being pressed, the paroxysms returned with the usual violence. I immediately removed the two bicuspides, and two molares of the lower jaw, and ordered Acet. Morphia, quarter of a grain; Mist. Camph, one ounce and a half; with the following aperient, Ext. Colocynth co. gr. vi. Hyd. Submur. gr. ii. in two pills,—with considerable relief. In the course of a week she was sufficiently recovered from the effect of the operation, to submit to have the other diseased teeth removed,—the dens sapientiæ of the lower, and the first and second molares of the upper jaw. The morphia draught and pills were continued for a few days, since which she has had no return of pain. A few months since I had the satisfaction of hearing that she was quite recovered, and had not experienced a moment's pain in the jaw, since the last operation.

METHOD OF OBTAINING PURE SILVER FOR CEMENTS,

EITHER IN THE METALLIC STATE OR IN THE FORM OF OXIDE.

BY W. GREGORY, M.D., F.R.S.E.

The chemist, as well as the metallurgist, has frequent occasion to purify silver, especially from copper, which is dissolved along with it by nitric acid, the proper solvent of silver. By converting the silver into the insoluble chloride, it is effectually purified from copper as well as from all other metals, the chlorides of which are soluble. But here the difficulty begins; the chloride of silver is a very unmanageable product, at least in the moist way. It is true, that if placed in water acidulated with hydrochloric acid, in contact with zinc or iron, the chloride of silver is reduced. But the process is tedious, seldom complete, and in the end unsatisfactory, for some zinc adheres to the reduced silver, so that it is not removed by digestion with moderately strong hydrochloric acid. This is proved by the action of ammonia, which extracts a good deal of oxide of zinc. Moreover, the zinc or iron is hardly ever pure, and its impurities, arsenic,

carbon, and perhaps also copper and tin, remain with the silver. I have never got from silver thus reduced a colourless solution of nitrate.

After describing the objections which attach to the different methods which have hitherto been adopted for obtaining the silver in a state of purity, the author says,

The following method appears to me the most advantageous:—

The cupreous solution of silver is precipitated by common salt, while hot, and the chloride of silver well washed by decantation with hot water. It should also be broken down with a spatula of platinum, or a glass rod, during the washing; but not ground in a mortar, which causes it to cake, and impedes the action of the potash. The chloride, *while still moist*, is covered to about half an inch with a solution of caustic potash, specific gravity 1.25 at least, and then boiled. During the boiling, which is best performed in a capsule of clean iron, silver, or platinum, the chloride is to be well stirred, in order to bruise all curdy or lumpy particles. If a small portion, taken out and washed, do not dissolve without risidue in dilute nitric acid, the potash is to be decanted off, and the powder, still moist, is to be well rubbed down in a mortar, which may *now* be done with advantage. It is then returned into the capsule, and again boiled for five minutes, with the same or with fresh potash. It will now dissolve entirely in nitric acid, but if not, a second grinding will infallibly succeed. It is now only necessary to wash the oxide, which is completed by decantation in a few minutes, as the powder, from its great density, sinks at once to the bottom. The first two or three washings are made with hot water, the remainder with cold water, for when the oxide is nearly washed, it rises partially to the surface with *hot water*, and thus a loss is occasioned in decanting. Of course, the whole washings (except the first, owing to the strength of the potash) may be conducted on a filter. But the powder is so fine, that probably a good deal would adhere to the paper when dry.

This oxide of silver appears in a form quite distinct from that of the oxide precipitated by potash from the nitrates, and is hitherto undescribed. It is very dense, homogeneous, and has a pure black colour, which has, if anything, a tint of blue, whereas the common oxide is bulky, far less dense, and of a greyish brown colour. They appear, however, to be chemically identical. Not having a microscope, I have not studied their physical characters minutely, but I suspect, from its aspect in the liquid in which it is formed, that the new oxide is crystalline.

It is obvious, that the above process furnishes an easy method of procuring a very pure oxide of silver, and of course the action of heat gives us the silver in the state of metal It is, I conceive, applicable both to the manufacture of nitrate (in a state of absolute purity) and to the metallurgic process for obtaining pure silver. For both objects, it is a matter of no consequence if some chloride should have escaped the action of the alkali. This chloride is left undissolved by the nitric acid, and is separated by filtration, while if the oxide (not quite free from chloride) be mixed with a little nitre or carbonate of potash, and fused, the whole silver is obtained with the utmost facility. In order to give an idea of the ease with which the whole is performed, I may mention, that I dissolved a half-crown, and obtained the whole of the silver it contained, within a very trifling fraction (chiefly decanted in the *first* washing of the chloride, *but not lost*) by the above process, *within two hours*, in a fused state. The silver was quite pure. There is no doubt that to chemists, also, an easy method of obtaining quickly, pure oxide of silver, in a form much less hygrometric than the usual one, will be acceptable.

It is particularly to be noticed, that if the chloride *have once been dried*, it is with great difficulty decomposed, even by a long boiling with potash. —*Philosophical Magazine.*

ON THE DEVELOPEMENT AND STRUCTURE OF THE TEETH.

(*Concluded from page* 44.)

1. *The Ivory or Bone of the Tooth.*—Retzius states that "having made a fine section of a tooth that had been placed in diluted muriatic acid, and having examined it by means of transmitted light, with a lens magnifying as low as 60 diameters, it will, be quite apparent to the observer, that it is composed of undulating fibres, in apposition internally with the *cavitas pulpæ*, and externally with the surface of the tooth."—If an oblique section be afterwards made, and a magnifying power of 200 diameters be employed, these fibres will appear to be hollow. Retzius found that the above fibres or tubes gave off branches, and that the main trunks opened into the cavitas pulpæ. Although these branches are principally evident towards the external surface of the tooth, the canals at their origin may be distinctly seen to present dichotomous divisions.

Retzius details the appearances revealed by the microscope in the teeth of man and the lower animals. In man, "the tubes which are contiguous appear to run parallel; upon examining a number, they are found to radiate from the central cavity towards the circumference." These tubes have, more or less, three curves, resembling the Greek letter ξ. These curves vary in different teeth, approaching sometimes in form to the Roman letter S. In well-formed teeth, the curves on each side present a certain symmetry. Independent of these general curves of the entire tube, under a higher magnifying power are observed "numerous shorter curvatures, nearly two hundred of which may be counted in the space of a line;" these produce the appearance in each tube of an undulating line. Professor Owen has remarked partial dilatations in the tubes of the human teeth, an appearance which has not unfrequently been noticed by ourselves.

Leeuwenhoeck endeavoured to ascertain how it was possible that tubes, which appear to run parallel to each other, should fill such a different space on the surface of the tooth, and at the internal cavity. He sought in vain for a trace of branches from them. Purkinje discovered

howe er, that these tubes do give off branches. Retzius says of them, "from their commencement in the cavitas pulpæ, the tubes appear to be of the same diameter for five sixths of their course;" and this diameter, after repeated admeasurements, he states to be $\frac{1}{365}$ of a line. After running five sixths of their course, they are found to diminish considerably in size until they disappear or terminate in small, irregular, rounded, and scattered cells. The branches of these tubes are more easily observable in milk teeth. In the permanent teeth, the branches are formed principally towards the extremities of the tubes; in the milk teeth they arise nearly equally from all parts. The branches arising from different tubes do not communicate with each other, except perhaps at their extremities.

Are these fibres tubular?—Retzius states that the cavitas pulpæ, viewed under a sufficiently high magnifying power, presents numerous orifices which he considers to be the mouths of the main tubes. He also states that, by making sections of the tubes at right angles with their course, the calibre of these tubes may be determined with facility; and that upon placing a section made in the above manner upon a dark ground, white spots distinctly denote the tubular orifices. Purkinje and Frankel convinced themselves of the tubular nature of these fibres, from finding, on making various sections of the tooth, that they were always able to demonstrate the parities and cavity of the cut tube. Muller states that he has seen these fibres or tubes in the l orse, injected with red colouring matter. Mr. Tomes has made some conclusive experiments upon this subject. After having reduced a transverse section of a giraffe's tooth, so as to render the tubes visible by the aid of transmitted light, he added to it, while under the microscope, diluted muriatic acid. "Chemical action immediately commenced, gas was disengaged and proceeded from the cut extremities of the tubes." He states that, more than once, he saw "the bubbles of gas in the tubes, and traced them to their extremities from which they escaped."

The Parities of the Tubes—Muller has made some researches upon this subject, which are of much interest. He states that the diameter of the tubes is only one-fifth or one-sixth of the spaces between them: the structure in the intervening spaces necessarily forming the greater

part of the bulk of the tooth. He says, that upon breaking fine sections of teeth perpendicular to their fibres, he has frequently seen the latter "extend from the margin beyond the tooth substance, seeming to be perfectly straight and inflexible;" but the earth being removed from slices of teeth, by means of acids, and the latter being torn in a direction contrary to the course of the fibres, "these fibres appear, upon the torn margin, quite flexible and transparent, and they not unfrequently project considerably beyond the margin of the section." Muller thinks that it may be inferred, from the above experiment, that the tubes have an animal basis or membrane, which in the firm tooth is fragile, and probably penetrated by calcareous salts. Upon this subject Retzius says, that, under a certain light, "the mouths of the canals appear bounded by a definite shadow;" and their walls, when the light falls upon them, have a different appearance from the surrounding matter, which Frankel calls the fundamental substance of the tooth. Frequently the circular orifices have a darker and somewhat yellowish appearance. "We may conclude," says Retzius "from all this, that the above described tubes are not merely hollowed out of the fundamental dental substance, but that they are tubes properly so called, consisting of a particular substance, differing from that of the tooth."

HAYDEN ON DISEASES OF CHILDREN.—Let it be supposed, for instance, that the lungs are a child's weak part, and that, under ordinary circumstances, he would have a cough during dentition—let him be exposed to cold whilst cutting his teeth, and not only will he be more disposed to take cold at such a time, but the fever will be much more likely to put on the form of inflammation of the lungs, than under ordinary circumstances. Here then dentition acts as a violent predisposing cause of disease. But let the child be predisposed to inflammation of the brain, then dentition will often act as an exciting cause; for whenever the body of a child is disordered, teething will create a greater flow of blood to the head than is natural. This increased quantity of blood will often be alone sufficient to excite inflammation of the brain when the body is predisposed to that disease.

To the Editor of the British Quarterly Journal of Dental Surgery.

SIR,

I HAVE perused "Mr. Clendon's Work on Extraction," with the hope of finding that his improvement of the forceps had superseded the use of my old and trusty friend the "key," his condemnation of which must arise, either from not thoroughly understanding its application, or from want of opportunity of testing its merits; his book abounds with severe strictures upon those practitioners who now venture to use it.

Although I admit considerable ingenuity has been displayed in the construction of his forceps, they are, however, as limited in their use, as all others that have preceded them, to those simple cases where decay has advanced sufficiently to expose the lining membrane, leaving the greater portion of the bone to withstand their pressure. In those cases, however, where the crown of the tooth is much decayed, the mere effort to detach it, and the pressure requisite to prevent their slipping would be unavoidably greater than the remaining substances of the tooth would allow without breaking. And in my opinion, those who profess to operate with such amazing dexterity in these cases, are so well aware of this fact from experience, that they have been frequently detected exhibiting their *magic* forceps with one hand, while the *key* was concealed in the other. A convincing proof, that the "key" instrument is the most admirable and useful contrivance in the hands of those who understand its simple application. As I have published my views on the impossibility of the forceps ever becoming universally employed, even in the hands of the most experienced operator, I shall avail myself of this opportunity to show where the forceps can be employed with success, as also the key and elevator. In the hope that you will find space for this communication,

I remain, Sir,

Your obedient servant,

Lincoln. F. I. TUTE, *Surgeon.*

The forceps can be employed only in the case of simple caries, where there is a considerable portion of the bony material of the tooth remaining, constituting a degree of firmness which will resist the grasp of the forceps, and will not crumble under it. The forceps should be of sufficient size to afford an easy purchase to the hand, while they are made so, that the inner surface of the blade fit exactly to the crown and sides of the tooth; for this reason, the operator should be in possession of several pairs so as to fit all different gradations of size. When then, we have chosen the pair of forceps that fit exactly to the tooth, we must take care to embrace the neck, as far up as the edge of the alveola for if we merely take hold of the crown, the forceps are liable to slip. Having taken a firm hold, we give the forceps an alternate lateral motion, also tending to the perpendicular; by the first we separate the adhesion of the tooth to the socket, and by the latter we draw it from its position. The forceps are *most applicable to the incisors, or cuspidati*, but, if they have a sufficient curve in their blade, they may also be employed to extract the bicuspid and molar teeth, if tolerably sound. The curve of the forceps must vary with the positive position of the tooth, so that the extremity of the blade fits in a perpendicular direction to the crown of the tooth, when precisely the same movements must be used, and the extraction of the tooth will generally follow.

The use of the key is demanded when there is such extensive caries that there is no purchase for the forceps, or when we find it more convenient, as in the lower jaw. The manner of placing the key must depend upon the extent of the caries, and the position of the tooth. When we can find sufficient of the tooth remaining on the inner side, to form a purchase for the claw, it must be placed upon it, and the fulcrum on the opposite side, so as to turn the tooth outwardly; but when a better hold is on the outside, the tooth may be turned towards the inside. Sometimes the tooth, instead of being perpendicular, has a lateral direction, especially the back teeth; in that case I should always recommend the fulcrum to be applied on the side to which it inclines, and the claw on the opposite, for reasons which will be presently noticed. The fulcrum should be oval, and must be applied to the gum, opposite

to the alveolary process, while the claw should be of sufficient length, that it may easily reach to the opposite side of the tooth, its extremity being placed upon the neck, exactly opposite to the upper part of the fulcrum, and these must be kept precisely in a horizontal direction. We then turn the handle of the instrument gently and steadily, taking care that the claw does not slip from its hold. Thus acting on the fulcrum, the upper portion of the tooth becomes a powerful lever to remove and detach the bottom, beginning first at one side, and stretching the socket, so as to make room for it the easier to slip out, thus the parts are easily and gradually loosened, but in quick succession.

The employment of the elevator is demanded in the extraction of old dead stumps, which, in consequence of a loss of vitality, are separated from all intimate vascular connexion with the living apparatus, and are even commenced to be removed by absorption. The manner of applying this instrument is to introduce it between the stump and alveolary process, and to poise the latter from its socket. The best plan is, first to lance the gum immediately above the alveolary process, and then to pass the elevator down firmly between these parts, and when we have insinuated it a sufficient distance, we must turn the handle of the elevator from the perpendicular direction to a right angle, when we easily raise the tooth from its position; we must be careful to place a finger on the opposite side of the tooth, guarded by some substance, so as to receive the instrument should it slip; this, however, very seldom happens if proper care has been taken to introduce it a sufficient depth before we make the turn. The point of the elevator need not be made very sharp, but should be lance-shaped so as easily to be insinuated between the stump and alveolary process. The extremity of the elevator may be introduced with sufficient facility on either side of the stump, while it may be used equally on the upper and lower jaw.

These are the principles which have guided me in the extraction of the teeth, and when followed up I have found them to be perfectly successful, while, by attention to them, I conceive I have been enabled not only to remove the tooth with facility, but to save my unfortunate patient a considerable amount of pain.

Case of Absorption of the Alveolar Process in the Upper Jaw, exposing the Floor of the Antrum Maxillare on the right side, and which was successfully relieved by Mechanical Means, &c.

By. J. L. Levison, Esq., S. D., Birmingham.

Mr. M——, a respectable and very temperate elderly gentleman, with a nervo-bilious temperament, who resides in this town, had suffered from an affection of the throat, with pain in the gums. All fluids, whether used for remedial purposes as a gargle or lotion, or for diet such as soup, wine, &c., whenever they were taken into the mouth, were forced through an artificial opening at the base of the *antrum*, and from thence passed through the *sinus* into the nostril, out of which it came like a *jet d'eau* of more or less calibre in proportion to the quantity of fluid which had been previously taken. There were other inconveniences and annoyances arising from this circumstance to deter a refined person from going into society. Mr. M—— was in this state when he was recommended by Joseph Hodgson, Esq. to consult me, and on examining the mouth, it presented a very malignant aspect. The gums were dark and swollen, with bright red edges, rather tinged with a purplish hue, and very fetid, which could scarcely be avoided, even though the strictest cleanliness was adopted.

The right side of the upper jaw was however the most affected part, being very much swollen in the region of the first and second molares. The alveolar processes of the latter were completely absorbed, leaving a visible cavity at the base of the antrum, of three quarters of an inch square, and this cavity was evidently increasing in consequence of the great irritation induced by the partially obtruded fangs of the first molaris, which were in a state of *necrosis*.

My first object was the removal of the offending stumps, and any other extraneous substance (tartar) which kept up an inflammatory action, and having done so, I recommended the following lotion to be used repeatedly during the day, and to be continued for some time.

Argent. Nitrat. gr. vñj.
Acid. Muriat. gtt. iij.
Aquæ. distill. viij. oz.

I should have proposed leeches, but was deterred from doing so, in consequence of an opinion which had been previously given by the talented surgeon who recommended the case. Nevertheless, I used the lancet very freely, often repeating the operation, and I had at length the satisfaction of restoring the mouth to a healthy state.

But the annoyance of the fluids passing through the artificial passage of the antrum remained, and my attention was next directed to remedy this evil, if it were possible. I therefore took a model in *ferruginous* wax, possessing the advantages of ductility and great sharpness.* There was great difficulty in succeeding, in consequence of the irregularity of the rim of the edges of the cavity, and the necessity for great accuracy in order to avoid anything like irregular pressure and consequent irritation. With care and patience I suceeded, and was amply rewarded for all the trouble by the comfort and ease of my patient. A gold plate was fitted very carefully, and so effectually covered the cavtity and the rugged edges, that not any portion of fluid could be forced into the antrum, and the plate also covered the remaining posterior portion of the alveolar process, and was firmly held in *situ*, by a strong flat gold clasp round the dens sapientiæ on the one side, and the *biscuspid* tooth on the other; whilst the portion of jaw and teeth (which had been removed by disease) was supplied in the usual manner with a block of the hippopotamus tooth. It is now more than twelve months since it was inserted, and there is not the slightest annoyance or irritation, and the former inconvenience is so effectually obviated that my patient can rinse his mouth, or eat soup, without any portion escaping through the artificial passage; and he has often told me, "that he is unconscious of his having a foreign substance in his mouth, so extremely easy it has been to him." Such an instance in dental science, is a proof of its importance and great utility.

* The wax, which I have termed ferruginous, is thus prepared.—Beeswax is put into a bason, and some boiling-hot water is poured upon it, which will render it almost in an oily state. When in this condition there should be one ounce of Armenian bole put to one pound of the wax, until the fine particles of oxide of iron is incorporated with the wax.

IMPROVEMENT IN THE KEY INSTRUMENT

BY F. S. PRIDEAUX, ESQ., S. D. SOUTHAMPTON.

ALTHOUGH the key does not occupy the rank it once held, as an extracting instrument, in the eyes of the Dental profession, being at the present day but occasionally, instead of almost exclusively, employed by the most skilful operators, yet as the instrument nearly universally used by the general practitioner, and that with which the teeth of the great mass of the community still are,—and for many years appear likely to be—extracted, any improvement in its construction must be regarded as worthy of attention. Independently, however, of its claims to notice on this account, the key, with the improvement I am about to describe, superadded, is in my opinion decidedly *the best* instrument that can be employed on certain occasions, viz. as a substitute for the elevator, in those cases where a fang is so much more deeply decayed on one side than the other, as to render it impossible to grasp it firmly with the forceps.

In the common key-instrument, in order to adjust and press down the point of the claw on the neck of the tooth or stump to be extracted, the finger of the operator is required to be inserted in the mouth of the patient, a proceeding which when the tooth to be removed is situated at the back part of the mouth, frequently obstructs the sight of the operator, and gives rise to a greater or less degree of difficulty, inconvenience, and loss of time in fixing the instrument. That this defect has long been felt and acknowledged, is evident from the various contrivances to obviate it, which have at different periods been proposed, some by men eminent in the profession, all of which, however, have hitherto proved either too complicatad in structure, or awkward in application, ever to come into general use. The distinguishing feature of the contrivance, which it is the object of the present paper to lay before the profession, and that in which it so essentially differs from all that have preceded it; is its *extreme simplicity*, the object being effected without the introduction of *machinery*, and the instrument in its modified form, retaining unimpaired every quality which contributed to its efficiency.

The improvement consists in the addition of a small bit of steel to the back of the claw (see annexed cut), of

such a size and shape, as to arrest the motion of the claw upwards, when about parallel with the centre of the bolster. The instrument being inserted in the mouth with the claw over the tooth to be removed, it is evident that by turning the wrist in the reverse way to that required for extracting the tooth, the claw may be forced down on its neck with any requisite force, as low as desired. This effected, the fore-finger, when necessary, should be placed on the claw to *retain* it in its position, the fulcrum adjusted, and the operation completed in the usual manner.

To obtain the full benefit which this contrivance is capable of conferring, the claws instead of terminating in three or four roughly finished points arranged in a right line, should be slightly hollowed on the inside, and possess a fine cutting edge. Thus constructed, when once placed on the edge of the stump to be extracted, they may be pressed down,—closely in contact with it, far below the surface of the gum, with the greatest facility, the operator having at the same time a full view of the progress of the instrument, and when it is considered that almost all the untoward results which arise from the use of the key, are caused by placing the fulcrum below, instead of level with, or when practicable, above the extremity of the claw, any contrivance having a tendency to lower the point at which the latter will usually be adjusted, can scarcely be over-valued.

In making these remarks, nothing can be farther from my intention than to propose to substitute the key for the forceps in any case, in which the latter can be advantageously applied; for although I do not coincide in the extreme views of those who pass on the key a general and unqualified condemnation, I am yet fully of opinion, that the forceps, in the hands of those who possess that fine *muscular sense*, essential in many cases to their skilful application,—are in all respects a decidedly superior instrument. To my mind most conclusive evidence in

support of the opinion, that *when both are used in the most skilful manner in which they can be applied*, the key must yield precedence to the forceps, is to be found in the fact, that numbers who have been educated in the use of the key, and who have acquired a thorough knowledge of its *mechanical properties*,—on which, rather than on any *manual dexterity*, its successful application depends,—have nevertheless abandoned it for the forceps; whereas, certainly a case never came within my knowledge, and I should suppose it almost impossible that one could occur, in which an operator, once *master* of the use of the forceps, went *backwards* (for so I must term it) to the use of the key as a general extracting instrument.

In my own practice I never use a key where there exists a fang to which a pair of forceps can be advantageously applied; but when the decay has extended obliquely to such a depth that whilst one side of the fang is level, or nearly level with the gum, the other is a quarter of an inch or more below it, and such cases are common, I find a small German key, with the contrivance I have described appended to it, invaluable, and after three years' experience of its merits, I am enabled to say that I have found its practical utility surpass my most sanguine expectations. This key, the only one I ever employ, is curved more than usual, sufficiently so to clear the incisors when the fulcrum is applied to the inner side of a bicuspis of the lower jaw. Never using the instrument except in cases of deep decay on one side, I have of course no choice of sides for adjusting the claw and fulcrum, but whenever the key is used in other cases, the fulcrum should be placed if possible on the outer side of the tooth, the inner alveolar plate being not only thicker than the outer, but also extending higher on the neck of the tooth. The only other peculiarity in the instrument I use is, that the bolster is smooth and polished, instead of roughened, in order to dispense with padding—in my opinion quite an unnecessary incumbrance to an instrument. This may appear at first sight a doubtful proposition to many, but the great cause of the bruising the gum by the use of the key, is the fulcrum being placed too low, and thus occasioning most unnecessary pressure and counter pressure, to an extent three or four times as great as would have sufficed to raise the tooth, if applied in the proper direction. My experience teaches me that

with a bolster which presents on all sides a smooth, polished, and slightly convex surface to the gum, provided the fulcrum be placed in its proper position,—level with or above the point of the claw, no injury to the gum is to be apprehended from the absence of padding, indeed, I am very much inclined to believe that unless the padding is wound round the bolster much more carefully and evenly than is commonly done, the pressure will be less equally divided over the surface of the bolster, and the gum suffer more than without it, at any rate I am of opinion that the practice is productive of no advantages which at all compensate for the loss of time, and greater unhandiness of the instrument attendant on it, and I anticipate the time is not far distant when it will become as completely obsolete as that of lancing the gum is at the present day; a custom which though once as universal as padding is now, never served any other purpose than to increase the suspense and timidity of the patient, and impair the sight of the operator.

ON THE CONSTRUCTION AND APPLICATION OF FORCEPS FOR EXTRACTING TEETH, *illustrated with woodcuts.* By JOHN TOMES. Churchill, London.

THE above pamphlet we have received, relative to Mr. Clendon's work on Extraction, in which the author accuses the latter gentleman of having copied an article from the Medical Gazette, wherein a description of his forceps was given. We give Mr. Tomes's statement, as also Mr. Clendon's denial, from the Medical Times.

I have found it necessary, for self-defence, to reprint the following paper from the Medical Gazette of June 4th, 1841, because a work has recently appeared, which is but a repetition of the matter related in that communication, repeated, however, without acknowledgement. The work is entitled. "Observations on the Exraction of Teeth, by J. Chitty Clendon," dated January, 1843, and from 15, Conduit Street, Hanover Square. Published by S Highley, 32, Fleet Street.

The purpose of the writer of this book has been to describe a presumed new form of tooth forceps, the idea of the construction of which he would have the world believe originated with himself; and, in furtherance of the latter object, he makes the following statement: "Accident at length introduced to my notice an individual* who readily carried out, and, it is due to him to acknowledge, improved upon my suggestions."†

Now the gentleman has, in the quoted passage, fallen into a most extraordinary mistake, for which I am quite unable to account.

The succeeding part of this preface to my reprinted paper will be occupied in showing that Mr. Clendon applied to my instrument maker,

* "*The person to whom I allude is Mr. Evrard, a Surgical Instrumer Maker, near the Middlesex Hospital.*

† Clendon on the Extraction of Teeth, page 34.

Mr. Evrard, of Charles Street, Middlesex Hospital; that he there saw the forceps which I had constructed; that he was told repeatedly (as Mr. Evrard assures me) by whom they were proposed; that he ordered similar instruments to be made for himself; and, moreover, that after finding patterns ready to his hands in the shop of my instrument maker, and after being told by whom they were designed, he has chosen to describe these forceps, copied from my patterns, as instruments of his own invention.

In January, 1840, during my residence at the Middlesex Hospital as house-surgeon, I thought of having tooth forceps made upon the described plan, namely, to fit accurately to the surface of the tooth for the extraction of which they were designed.

In this and the following month my plan was carried into effect by Mr. Evrard, who, from that time, has kept sets of these instruments in his shop, which have from time to time been purchased both by dentists and surgeons.

During the same year, sets were ordered for the use of both Middlesex Hospital and King's College Hospital.

In 1841, on the 4th of June, I published, in the Medical Gazette, a description of these forceps illustrated with woodcuts. Mr. Clendon for the first time applied to Mr. Evrard on the 17th of December, 1841, nearly two years after the introduction of these instruments, and more than six months after the publication of my paper. Subsequently Mr. Clendon ordered several pairs of forceps, which were not made after his suggestions, with improvements by Mr. Evrard, but were made after the instruments Mr. Evrard had made for me; a fact proved by Mr. Clendon's engravings.

When the forceps, which he has since assumed to be his own, were shown to Mr. Clendon, he was told by whom they were proposed, and was also told that they had been described and figured; yet with this knowledge he has chosen to take upon himself the credit of the design, as is but *too* fully proved by a reference to his book, or even to the passage of which I have made an extract.

It now only remains for me to show that Mr. Chitty Clendon has described instruments identical with mine; and that he has done so, no second opinion can be held, if his book be compared with my paper from the Gazette, when it will be seen that the matter of the letter-press in each is to the same purpose, and that the figures are expressive of precisely the same instruments; except that in my communication I thought it unnecessary to give figures of those forceps required for the extraction of single-fanged teeth, whereas Mr. Clendon has of them given engravings.

In conclusion I may state, that at the time the forceps were made and brought into use, and when the paper explanatory of them was written, although I did not think the subject unimportant, yet to me it did not seem worthy of being made the matter of a separate volume. For although instruments of similar construction were not to be found in the shops of surgical instrument-makers, or in the hands of general practitioners, it was more than probable that many who practised dental surgery possessed instruments, if not of similar construction, yet of a form which, in their hands, answered fully the required purpose. Neither should I have republished my paper at this time, and in the present form, had not the above quoted work, with its assumed originality, been issued from the press. This, however, left me no choice.

J. TOMES,

April 16th, 1843. 41, Mortimer Street, Cavendish Square.

MR. CLENDON'S REPLY.

To the Editor of the "Medical Times."

SIR,

MY attention has been directed to a charge made against me by a correspondent of yours who writes himself a "FRIEND," which charge you (very justly) suppose has only to be named to secure a refutation. It is asseverated, then that in the *Medical Gazette*, No. 37, June 4, 1841, Mr. J. Tomes wrote an article "on the construction and application of forceps for extracting teeth," which is *in petto* the work of Mr. Clendon, &c. &c.

Now, Sir, it is often difficult to *prove* a negative, and in the present instance my answer to the charge must necessarily rest upon my unsupported assertion; but I must solemnly pledge you my word as a man, and as a gentleman, that when my book was written, I was not only ignorant that Mr. Tomes had written a paper on forceps, but never remember to have heard that gentleman's name; and further, that up to the moment I write, I have never seen, either the *Medical Gazette* for June, 4, 1841, or the article to which your correspondent refers. The remainder of the charge, under such circumstances, requires no answer; but I would ask your correspondent in which part of the work I claim the forceps as my own. I have been blamed, and with greater appearance of justice, for giving so much praise—where I thought it due—to the instrument-maker, and even accused of writing for his benefit; but the fact is, my great object being to establish a principle, I was particularly desirous of not taking credit to myself, foreseeing how much jealousy such a course was calculated to produce; besides, I well knew that perfection is not reached at a stride, but by gradations,—and, in proof of this, I have lately been shewn forceps, in which the same principle is attempted to be carrred out. These instruments bear the name of "Fay," and have been made nearly twenty years. I may also mention the observation of an eminent physician, who, on seeing my case of forceps, exclaimed, "Ah! you borrowed this idea of Cartwright;" and another gentleman, a member of my own profession, informed me he had used forceps, made on a similar plan, but not so perfect nor well-finished, for the last three years, and that he had borrowed the idea from a relative, an extensive practitioner in the country. So much, then, for originality. As I had no idea of turning instrument maker, or deriving a profit from the sale of forceps, I laid no claim to it, but sought only to establish the principle on which they remove teeth, and show the advantages of well-made forceps over the key instrument—arguments which no one has yet attempted to disprove.

I am, Sir,
Your obedient Servant,
J. CHITTY CLENDON.

15, Conduit-st. Hanover-sq.
April 24, 1843.

To the Editor of the British Quarterly Journal of Dental Surgery.

SIR,

I FORWARD you a copy of the "Medical Times" for Saturday last, and beg to call your attention to a letter of mine, in reply to a charge of plagiarism brought against me, in a previous number of that journal.

This letter has been deemed so satisfactory by those friends—members of the profession—whom I have consulted on the subject, that they have strongly urged me to take no notice of a repetition of the attack, which Mr. J. Tomes, without seeking an explanation, or waiting for the reply above alluded to, has thought fit to publish and forward to several members of the profession.

I am assured the answer already given is sufficient to satisfy any gentleman whose good opinion I may be anxious to possess,—that being an entire stranger to Mr. Tomes, and having, even on his own shewing, done nothing to provoke the attack—I owe it to myself to treat it with contempt, especially as the *animus* which pervades Mr. Tomes's preface, is quite sufficient to stamp it in the estimation of every unbiassed person.

As I appeal to gentlemen, I feel confident that in following this course, my silence will not be mistaken for inability to answer the charge brought against me.

I am, Sir,
Your obedient servant,
J. CHITTY CLENDON.

15, Conduit-st., Hanover-sq.,
May 1st, 1843.

A repetition of the charge has again been published in the "*Medical Times.*" Mr. Clendon replied, by explaining that the instruments described in his work were made expressly for him, according to his own directions. He does not, however, deny that adjusted forceps were previously made for Mr. Tomes and others, but denies Mr. T.'s claim to originality any more than his own.

To the Editor of the British Quarterly Journal of Dental Surgery.

SIR, Exeter, May, 29th., 1843.

IN perusing a pamphlet published in April last, by Mr. Tomes, he appears to dispute with Mr. Chitty Clendon, the invention of forceps for extracting teeth, of which he has given engravings, and dates the introduction of them to January, 1840. I must beg leave to say, they appeared to me, judging from those engravings (not having seen any of Mr. Tomes's instruments) to be precisely like some I had made in November 1835, by Messrs. Maw (whose name they bear), according to patterns and models then given to them, of my own construction, with adaptations to the fangs of the upper and lower molares of both sides of the mouth, they were the last amongst many pairs I had made by Messrs. Maw, whether Mr. Tomes ever saw those patterns I know not, but it does appear a *singular coincidence*, that after a lapse of five years, the same patterns should be made and

claimed as a new invention. I say the *same* patterns, as there is, on looking at the engravings, little if ANY difference in the construction. I congratulate, Mr. Tomes on having published his observations, which cannot fail to be *duly appreciated*, and I am glad to find others have seen the necessity of having extracting forceps made different to those kept at the instrument makers; for my own part, I, many years since, was so utterly averse to the use of the key, that I determined to abandon its use in my own practice altogether, and finding the forceps as usually made, very inadequate, I made patterns of all such forms as I conceived desirable, and had them made by various makers, amongst whom were Messrs. Maw, who made those now alluded to in 1835, and they may probably remember having received the patterns from me.

I think the generally received opinion, that the Key is an *indispensable* instrument to the surgeon dentists, is very erroneous, as I can truly assert, I have not used it, in a single instance, during the last fifteen years, in which period I have had presented some of the most difficult cases, but they have invariably been successfully treated with forceps, of which, however, it is essential to have a variety of forms.

The claim to any merit in the introduction of instruments, the construction of which, from the advanced state of Dental Surgery, enforces upon its professors the necessity of exerting their mechanical abilities as may best facilitate the operations they may called on to perform, I think they are justly entitled to, and it is to be hoped, in future, any invention pertaining to the advancement of the profession, or the benefit of the public, will not, as hitherto, be kept secret, having now the advantage of the British Quarterly Journal, which unquestionably will be the means of diffusing a more general knowledge, and better feeling amonst the members of the profession. I beg to apologize for this lengthened communication, the insertion of which if not intruding too much on your pages, will oblige,

Sir, your's obediently,

J. LEVANDER.

REVIEWS.

Surgical, Operative, and Mechanical Dentistry. By L. C. De Loude. Whittaker and Co., 1840.

It is not difficult to perceive that the writer of these pages has read a good deal of what is valuable, in the works of the best authors on the subject, and he adheres pretty strictly to the principles they lay down. But he does not appear to have made any researches into the physiology or pathology of the dental system, which can entitle him to the merit of having added anything to the science. The correctness we have mentioned, is not, however, without exceptions. One instance of objectionable practice it becomes us to notice, because it cannot be too strongly condemned. We allude to the chapter on Scaling the Teeth, where the author recommends the use of mineral acids in removing discolorations of the enamel. The tender solicitude he evinces for the integrity of the patient's dress, in the grave caution which he gives to the bungler to be careful how he meddles with the dangerous liquid lest his shaking hand should spill a drop or two, is certainly very considerate; but for our own part, we think the tooth itself should claim our first care, and apprehending, as we do, that what would burn the former, would as readily destroy the latter, we would interdict the use of muriatic and other such acids, though applied by the steady hand of Mr. De Loude himself. We observe in another part of the book, that this gentleman, though of opinion that alum and cream of tartar act with a destructive chemical effect upon the enamel, does not hesitate to incorporate them pretty largely with his tinctures and tooth powders.

That part of the chapter on Mechanical Dentistry, pointing to the "Operative" section of the profession, who are too genteel to apply themselves to the mechanical department, deserves the serious attention of all whom it concerns, and we need scarcely say that we fully concur with the author in the propriety and cogency of his strictures. We think the subject of irregularities of the teeth sufficiently interesting to give it a claim to be treated more at large, in a work which professes to embrace surgical dentistry, of which it is an important

branch. This might have been done without much increasing the bulk of the volume, by curtailing a little the graphic catalogue of the evils arising from neglecting the teeth, which is somewhat tedious. On the whole the matter is well arranged and treated methodically, and the engraved plates are exceedingly well executed.

THE TEETH PHYSIOLOGICALLY CONSIDERED; THEIR DEVELOPEMENT, DISEASE, PRESERVATION, AND REPLACEMENT. By Samuel Ghrimes, Surgeon-Dentist. Renshaw, London, 1843.

THE object of all books of this kind is pretty generally known to the public and the profession: they are mere advertisements," and must all necessarily resemble each other, being only distinguished by more or less accuracy and skill displayed in their compilation.

NUMEROUS CASES OF SURGICAL OPERATIONS WITHOUT PAIN IN THE MESMERIC STATE, with Remarks. By JOHN ELLIOTSON, M.D. Cantab., F.R.S.—London, H. Bailliere, Regent Street, 1843.

We make the following extract from the above work.

"Mr. Prideaux," says the doctor, "has had extraordinary experience in this way, and obliged me with the following letter."

"My dear Sir,

"In compliance with your wishes I have great pleasure in furnishing you with a few brief particulars of the cases in which I have operated on the teeth of patients when in a state of magnetic sleep. My first information of the operation of tooth extraction having been performed during this state, and without pain to the patient, was derived from Teste's "*Manuel pratique du Magnetisme Animal*," published in Paris in 1840; a work not known in this country so much as it deserves to be. Upon becoming myself a magnetiser, I naturally became desirous of trying an experiment so applicable in my own profession, and an opportunity soon presented itself. A patient I was then in the habit of frequently entrancing, and who when in this state had always shown insensibility to the ordinary tests of feeling, such as pricking, pinching, &c., had a great number of decayed teeth and stumps, from which she suffered so much, without being able to summon resolution to undergo their extraction, as gladly to embrace my proposal of being operated upon in the mesmeric state. During the next magnetic sitting, I took the opportunity of removing two of the most troublesome teeth, and with the most perfect success. *The patient sat with the hands quietly folded in the lap, the countenance was placid and serene, and the whole attitude that of repose;*

in short, not the slightest trace of mental emotion was perceptible, and upon being awakened, it was not till she had examined her mouth that she could credit the reality of her painless release from her tormentors.

"I should have proceeded in the task of extraction on this occasion, but it appeared to me a pity that a phenomenon so interesting in its results to every friend of humanity, from the new era it promised to introduce in operative surgery, and withal so calculated to carry conviction to the minds of sceptics, should be shrouded in comparative privacy (only one friend was present), and I accordingly resolved to defer the extraction of the remainder, and invite a party of medical men to be eye-witnesses of the operation. I took an early opportunity of doing so, and on this occasion extracted two teeth and three stumps from the patient, who, to their great amazement, manifested the same insensibility and indifference to the operation as before.

"I have since extracted from the same patient seven teeth and eight stumps, at three different sittings (making in the whole, eleven teeth and eleven stumps), with equally satisfactory results, and I may remark that the patient being comparatively a young person, no absorption of the alveolar process and gum had taken place, but all the teeth were firmly rooted.

"On the last occasion, five teeth and two stumps were extracted preparatory to her being supplied with a set of artificial teeth. Several were from the front of the mouth, and as tooth after tooth was extracted, the patient was excessively diverted at the alteration in her appearance; in fact she could with difficulty controul her laughter; and as soon as the opperation was over she called for a looking-glass, and holding it up before her *closed* eyes examined her mouth attentively, drawing back the lips on either side with her fingers to get a better view, and finishing by a hearty fit of laughter at the droll figure she presented with her mouth almost toothless. This sitting was witnessed by a friend of mine, Mr. Henry Goode, B.A. of Pembroke College, Cambridge, who chanced to be spending a few days with me at the time, and who will be happy on all occasions to corroborate the account I have just given, as well as to produce the teeth extracted if required.

"I have extracted single teeth from three other patients during mesmeric sleep, with equally satisfactory results, 'the insensibily being evidently perfect.' In fact in two of these cases, the patients were utterly unconscious during their mesmeric state that any operation had been performed on them, being engaged in a conversation on another subject at the time, which suffered no interruption, beyond a slight indistinctness in articulation during the few seconds the instrument was in the mouth.

"A fifth patient on whom I have operated during the mesmeric state, is a young lady who required to have several of her molares separated with a file on account of the commencement of decay, and one stopped. I found her a most troublesome and restless patient, in her natural state, shrinking when the cavity in her tooth was touched, and complaining greatly of the unpleasantness of the sensation of filing. I succeeded in entrancing her at the first trial in about five minutes, and in this state she allowed me to operate *for two hours with the most passive indifference*, assuring me she felt nothing, except a slight sensation of heat, when the file was used rapidly and continuously for some time together.

"This case is I think interesting and valuable, and affords some evidence

in favour of an opinion I brought forward on analogical grounds, in my pamphlet on the Mental Functions, viz.: that there are distinct sets of nerves for feeling and temperature, an idea which you have since informed me suggested itself to Darwin, from seeing a case of paralysis, in which the sense of temperature remained after feeling was lost.

"The subject is certainly one of importance, and I have made several attempts since to 'isolate' these two senses, and in one patient with perfect success. The means I employ are, the application to the skin of a glass stopper heated to a temperature just below what would suffice to raise a blister, to test the sensibility to temperature, and pricking with a common needle, to test that of ordinary sensation, and I possess the power of rendering the patient sensible to the heated stopper and insensible to the needle, or insensible to the heated stopper and sensible to the pricking, or insensible, or sensible to both, at pleasure.

"Believe me, my dear Sir,

"Yours, very sincerely,

Southampton, Nov. 20, 1842. "J. S. PRIDEAUX."

"I fear that those members of the Medical Society, who were puzzled by the man's low moaning, will be more puzzled by the lady who was fast asleep and felt not the severest mechanical violence and yet walked, and talked, and saw. And puzzled they will be till they have studied, as they ought long ago, the history of sonambulism, catalepsy, and the whole of that family of nervous affection. When the ignorance of medical men ceases, the character of innocent patients will no longer be traduced.

"I received the following letter from Mr. Carstairs, of Sheffield—

"*Devonshire Street, Sheffield, Nov. 17th*, 1842.

"SIR,

"I have the honour to acknowledge the receipt of your favour of the 16th, and proceed at once to comply with your request. Although my experiments have not been so numerous nor so important, *per se*, they are drops in the bucket of truth, which, united with others, tend to prove that operations may be performed without pain through mesmerism.

"In two cases I have extracted teeth; one in one case and two in the other. The patients were females, and neither of them was aware on being roused from the state of mesmeric coma, that the teeth had been extracted. In another case, of a lad about twelve years of age, I opened a large abscess behind the ear and discharged about a table-spoonful of pus, inserted a dossil of lint, and dressed the wound, without the patient being sensible of pain. He had not been previously mesmerised, and was not aware of my intention, when I began to make the passes, which were effectual in producing sleep in about five minutes. In another case I cut a large wart from the back of a female's hand, who had been mesmerised by me several times before. I had aroused her, and then produced catalepsy in the arm and hand, so that she saw what I was doing, but suffered no pain nor inconvenience from the operation, although an extremely nervous, irritable person. The only other case I have had was inserting a seton, which was accomplished without the slightest pain.

"I remain,

"Yours faithfully,

"THOMAS CARSTAIRS."

THE ANATOMIST'S VADE MECUM: *a System of Human Anatomy.* By ERASMUS WILSON; *with one hundred and sixty-seven illustrations by* Bagg. *Second Edition.* London, Churchhill. 12mo. pp. 595.

As dental science is a branch of medicine, and is every day assuming increased importance from the attention paid to it by cultivated and well-informed minds, it behoves us to direct the attention of our readers to such works as are calculated to form the library of the dentist as well as the practitioner of general medicine. Upon the necessity of a knowledge of the principles of anatomy to the dentist it is unnecessary to enlarge, for daily experience must prove the truth of this position to every member of our art. It is to anatomy that we are indebted for our knowledge of the form and constitution of the jaws in which the teeth are set, and of the changes taking place in those organs as a consequence of growth; anatomy teaches us the structure of the alveolar processes, and of the teeth themselves; through it we learn to shield the artificial pieces placed within the mouth from the destructive powers of the muscular system; by means of anatomy we comprehend the changes taking place in the gums, and even in the teeth themselves, through the agency of the vascular system; by anatomy we detect, through the medium of the nervous system, the state of the pulp of the tooth, the existence of pathological actions in the substance of the tooth, and the reaction of those changes on the entire economy; anatomy again explains the well known sympathies which exist between the teeth, and the stomach, and lungs, indeed with all those viscera which are lined by a continuation of the great membrane of the mouth, the gastro-pulmonary mucous membrane; in fine, as every educated dentist will admit the importance of an acquaintance with those laws affecting the dental organs which rest on a knowledge of anatomy, so every one will recognise the necessity of information on anatomy to the members of our art. The work before us is remarkable for the number and beauty of its illustrations as well as for the truth and fidelity of its descriptions, and forms one of the most elegant volumes that we have ever examined. That its merits are acknowledged we have evidence in

the publication of a second edition within two years from the first appearance of the work, as also in the fact of its being reprinted in America and translated in Berlin, the very hot-bed of anatomy and physiology. But let us turn to those subjects that constitute the peculiar province of the dentist, and see how Mr. Wilson has treated them. In the chapter dedicated to osteology at the conclusion of the anatomy of the bones of the head, the author announces the provision bestowed on man of two successions of teeth, and proceeds to describe them; he then discusses the structure of the dental organs.

The base of the crown of each tooth is hollowed into a small cavity, which is continuous with a canal passing through the middle of each fang. The cavity and canal, or canals, constitute the cavitas pulpæ, and contain a soft and secreting vascular organ,—the *pulp*,—which receives its supply of vessels and nerves through the small opening at the apex of each root.

The tooth is composed of three distinct structures; the ivory or toothbone, enamel, and a cortical substance or cementum. The *ivory*, consists of microscopic undulating and branching tubuli, which open by their larger extremities upon the walls of the cavitas pulpæ and radiate towards the surface of the ivory, where they terminate in ramifications of infinite minuteness. These tubuli have distinct walls, are separated from each other by intervals equal in breadth to the diameter of two or three of the tubes, and composed of dense dental substance, and they contain within their cylinders a calcareous substance disposed in irregular masses. As the growth of the tooth takes place from the surface towards the centre, the most minute ramifications are first formed, and the trunks of the tubuli are the last deposited.

The *enamel* forms a crust over the whole exposed surface of the crown of the tooth to the commencement of its root; it is thickest over the upper part of the crown, and becomes gradually thinner as it approaches the neck. It is composed of minute hexagonal crystalline fibres, resting by one extremity against the surface of the ivory, and constituting by the other the free surface of the crown. The enamel is separated from the ivory by a thin layer of membrane, continuous with a thin organic sheath which encloses each enamel fibre, and marks it by means of transverse lines into irregular divisions. Mr. Nasmyth is of opinion, that the enamel is invested by a thin layer of membrane, which is continued over the root, and is reflected through the opening in the apex of the fang into the cavitas pulpæ, which it lines throughout. This membrane is considered by Mr. Nasmyth to be the "*persistant dental capsule.*"

The *cortical substance*, or cementum, forms a thin coating over the root of the tooth, from the termination of the enamel to the opening in the apex of the fang. In structure it consists of true bone, characterised by the existence of numerous calcigerous cells and tubuli. The cementum increases in thickness with the advance of age, and gives rise to those exostosed appearances occasionally seen in the teeth of very old persons, or in those who have taken much mercury. In old age the cavitas pulpæ is often found filled up and obliterated by osseous substance analogous to the cementum.

Respecting the development of the teeth, Mr. Wilson avails himself of the researches of Mr. Goodsir, and by a process of condensation, has placed before us in brief space the whole of the results of that gentleman's labours. The inquiries of Mr. Goodsir, writes Mr. Wilson,

commenced as early as the sixth week after conception, in an embryo, which measured seven lines and a half in length and weighed fifteen grains. At this early period each jaw presents two semicircular folds around its circumference; the most external is the true lip; the internal, the rudiment of the palate; and between these is a deep groove, lined by the common mucous membrane of the mouth. A little later a ridge is developed from the floor of this groove in a direction from behind forwards, this is the rudiment of the external alveolus and the arrangement of the appearances from without inwards at this period is the following:—Most externally, and forming the boundary of the mouth, is the *lip;* next we find a *deep groove*, which separates the lip from the future jaw; then comes the *external alveolar ridge;* fourthly, another groove, in which the germs of the teeth are developed, the *primitive dental groove;* fifthly, a rudiment of the *internal alveolar ridge;* and, sixthly, the rudiment of the *future palate* bounding the whole internally. At the seventh week the germ of the first deciduous molar of the upper jaw has made its appearance, in the form of a "simple, free, granular papilla" of the mucous membrane, projecting from the floor of the primitive dental groove. At the eighth week, the papilla of the canine tooth is developed; at the ninth week the papillæ of the four incisors (the middle preceding the lateral) appear; and at the tenth week the papilla of the second molar is seen behind the anterior molar in the primitive dental groove. So that at this early period, viz. the tenth week, the papillæ or germs of the whole of the ten deciduous teeth of the upper jaw are quite distinct. Those of the lower jaw are a little more tardy, the papilla of the first molar is merely a slight bulging at the seventh week, and the tenth papilla is not apparent until the eleventh week.

From about the eighth week the primitive dental groove becomes contracted before and behind the first deciduous molar, and laminæ of the mucous membrane are developed around the other papillæ, which increase in growth and enclose the papillæ in follicles with open mouths. At the tenth week the follicle of the first molar is completed, then that of the canine; during the eleventh and twelfth weeks the follicles of the incisors succeed, and at the thirteenth week the follicle of the posterior deciduous molar.

During the thirteenth week the papillæ undergo an alteration of form, and assume the shape of the teeth they are intended to represent. And at the same time small membranous processes are developed from the mouths of the follicles; these processes are intended to serve the purpose of opercula to the follicles, and they correspond in shape with the form of the crowns of their appertaining teeth. To the follicles of the incisor teeth there are two opercula; to the canine three; and to the molars a number relative to the number of their tubercles, either four or five. During the fourteenth and fifteenth weeks the opercula have completely closed the follicles, so as to convert them into *dental sacs*, and at the same time the papillæ have become *pulps*.

The deep portion of the primitive dental groove, viz. that which contains the dental sacs of the deciduous teeth, being thus closed in, the remaining portion, that which is nearer the surface of the gum, is still left open, and to this Mr. Goodsir has given the title of *secondary dental groove;* as it serves for the developement of all the permanent teeth, with the exception of the anterior molars. During the fourteenth and fifteenth weeks small lunated inflexions of the mucous membrane are formed, immediately to the inner side of the closing opercula of the deciduous dental follicles, commencing behind the incisors and proceeding onwards through the rest; these are the rudiments of the follicles or *cavities of reserve* of the four permanent incisors, two permanent canines, and the four bicuspides. As the secondary dental groove gradually closes, these follicular inflections of the mucous membrane are converted into closed *cavities of reserve*, which recede from the surface of the gum and lie immediately to the inner side and in close contact with the dental

sacs of the deciduous teeth, being enclosed in their submucous cellular tissue At about the fifth month the anterior of these cavities of reserve dilate at their distal extremities, and a fold or papilla projects into their fundus, constituting the rudiment of the germ of the permanent tooth, at the same time two small opercular folds are produced at their proximal or small extremities, and convert them into true dental sacs.

During the fifth month the posterior part of the primitive dental groove behind the sac of the last deciduous tooth has remained open, and in it has developed the papilla and follicle of the first permanent molar. Upon the closure of this follicle by its opercula, the secondary dental groove upon the summit of its crown forms a large cavity of reserve, lying in contact with the dental sac upon the one side and with the gum upon the superficial side. At this period the deciduous teeth, and the sacs of the ten anterior permanent teeth, increase so much in size, without a corresponding lengthening of the jaws, that the first permanent molars are gradually pressed backwards and upwards into the maxillary tuberosity in the upper jaw, and into the base of the coronoid process of the lower jaw ; a position which they occupy at the eighth and ninth month of fœtal life. In the infant of seven or eight months the jaws have grown in length, and the first permanent molar returns to its proper position in the dental range. The cavity of reserve, which had been previously elongated by the upward movement of the first permanent molar, now dilates into the cavity which that tooth has just quitted ; a papilla is developed from its fundus, the cavity becomes constricted, and the dental sac of the second molar tooth is formed, still leaving a portion of the great cavity of reserve in connection with the superficial side of the sac. As the jaws continue to grow in length, the second permanent dental sac descends from its elevated position and advances forwards into the dental range, following the same curve with the first permanent molar. The remainder of the cavity of reserve, already lengthened backwards by the previous position of the second molar, again dilates for the last time, developes a papilla and sac in the same manner with the preceding, and forms the third permanent molar or wisdom tooth, which, at the age of nineteen or twenty, upon the increased growth of the jaw, follows the course of the first and second molars into the dental range.

From a consideration of the foregoing phenomena Mr. Goodsir has divided the process of dentition into three natural stages :—1. follicular ; 2. saccular ; 3. eruptive. The first, or *follicular stage*, he makes to include all the changes which take place from the first appearance of the dental groove and papillæ to the closure of their follicles ; occupying a period which extends from the sixth week to the fourth or fifth month of intra-uterine existence. The second, or *saccular stage*, comprises the period when the follicles are shut sacs, and the included papillæ pulps ; it commences at the fourth and fifth months, and terminates for the median incisors, at the seventh or eighth month of infantile life, and for the wisdom teeth about the twenty-first year. The third, or *eruptive stage*, includes the completion of the teeth, the eruption and shedding of the temporary set, the eruption of the permanent, and the necessary changes in the alveolar processes." It extends from the seventh month till the twenty-first year.

" The *anterior permanent molar*," says Mr. Goodsir, " is the most remarkable tooth in man, as it forms a transition between the milk and the permanent set." If considered anatomically, *i e.* in its devolopement from the primitive dental groove, by a papilla and follicle, " it is decidedly a milk tooth ;" if physiologically, " as the most efficient grinder in the adult mouth, we must consider it a permanent tooth." " It is a curious circumstance, and one which will readily suggest itself to the surgeon, that laying out of view the wisdom teeth, which sometimes decay at an early period from other causes, the anterior molars are the permanent teeth, which most frequently give way first, and in the most symmetrical manner and at the same time, and frequently before the milk set."

The growth of the teeth and their eruption, is thus ably and methodically described:

Immediately that the dental follicles have been closed by their opercula, the pulps become moulded into the form of the future teeth; and the bases of the molars divided into two or three portions, representing the future fangs. The dental sac is composed of two layers, an internal or vascular layer, which was originally a part of the mucous surface of the mouth, and a cellulo-fibrous layer, analogous to the corium of the mucous membrane. Upon the formation of this sac by the closure of the follicle, the mucous membrane resembles a serous membrane in being a shut sac, and may be considered as consisting of a tunica propria, which invests the pulp; and a tunica reflexa, which is adherent by its outer surface with the structures in the jaw, and by the inner surface is free, being separated from the pulp by an intervening cavity. As soon as the moulding of the pulps has commenced, this cavity increases and becomes filled with a gelatinous granular substance, the *enamel organ*, which is adherent to the whole internal surface of the tunica reflexa, but not to the tunica propria and pulp. At the same period, viz. during the fourth or fifth month, a thin lamina of ivory is secreted by the pulp, and deposited upon its most prominent point: if the tooth be incisor or canine the secreted layer has the form of a small hollow cone; if molar, there will be four or five small cones corresponding with the number of tubercles on its crown. These cones are united by the secretion of additional layers, the pulp becomes gradually surrounded and diminishes in size, depositing fresh layers, during its retreat into the jaws until the entire tooth with its fangs is completed, and the small cavitas pulpæ of the perfect tooth alone remains, communicating through the opening in the apex of each fang with the dental vessels and nerves. The number of roots appears to depend upon the number of nervous filaments sent to each pulp. When the secretion of the ivory has commenced, the enamel organ becomes transformed into a laminated tissue, corresponding with the direction of the fibres of the enamel, and the crystalline substance of the enamel issecreted into its meshes by the vascular lining of the sac.

The *cementum* appears to be formed at a later period of life, either by a deposition of osseous substance by that portion of the dental sac which continues to enclose the fang, and acts as its periosteum, or by the conversion of that membrane itself into bone; the former supposition is the more probable.

The secretion of ivory commences in the first permanent molar previous'y to birth.

Eruption.—When the crown of the tooth has been formed and coated with enamel, and the fang has grown to the bottom of its socket by the progressive lengthening of the pulp, the deposition of ivory, and the adhesion of the ivory to the contiguous portion of the sac, the pressure of the socket causes the reflected portion of the sac and the edge of the tooth to approach, and the latter to pass through the gum. The sac has thereby resumed its original follicular condition, and has become continuous with the mucous membrane of the mouth. The opened sac now begins to shorten more rapidly than the fang lengthens, and the tooth is quickly drawn upwards by the contraction, leaving a space between the extremity of the unfinished root and the bottom of the socket, in which the growth and completion of the fang is more speedily effected.

During the changes which have here been described as taking place among the dental sacs contained within the jaws, the septa between the sacs, which at first were composed of spongy tissue, soon became fibrous, and were afterwards formed of bone, which was developed from the surface and proceeded by degrees more deeply into the jaws, to constitute the alveoli.

The sacs of the ten anterior permanent teeth, at first enclosed in the submucous cellular tissue of the deciduous dental sacs, and received during their growth into crypts situated behind the deciducus teeth, advanced by degrees beneath the fangs of those teeth, and became separated from them by distinct osseous alveoli. The necks of the sacs of the permanent teeth, by which they originally communicated with the mucous lining of the secondary groove, still exist, in the form of minute obliterated cords, separated from the deciduous teeth by their alveolus, but communicating through a minute osseous canal with the fibrous tissue of the palate, immediately behind the corresponding deciduous teeth. "These cords and foramina are not obliterated in the child," says Mr. Goodsir, "either because the cords are to become useful as '*gubernacula*' and the canals as '*itinera dentium*;' or, much more probably, in virtue of a law, which appears to be a general one in the developement of animal bodies, viz. *that parts, or organs, which have once acted an important part, however atrophied they may afterwards become, yet never altogether disappear; so long as they do not interfere with other parts or functions.*"

The periods of succession of the teeth are, Mr. Wilson remarks, extremely irregular; hence it becomes necessary to have recourse to an average, and for convenience of reference this average is introduced in a tabular form. It must be borne in mind also that the teeth of the lower jaw precede those of the upper by a short interval. The periods of succession of the temporary teeth are the following:

7th month, two middle incisors.	18th month, canine.
9th month, two lateral incisors.	24th month, two last molares.
12th month, first molares.	

The periods for the permanent teeth are,

6½ year, first molares.	10th year, second bicuspides.
7th year, two middle incisors.	11th to 12th year, canine.
8th year, two lateral incisors.	12th to 13th year second, molares.
9th year, first bicuspides.	17th to 21st year, last molares.

Passing from the teeth to the soft parts in connection with those organs, we find at page 509 the following short account of the gums, an account which, in their normal state, embraces all that we require to know with regard to them.

The gums are composed of a thick and dense mucous membrane which is closely adherent to the periosteum of the alveolar processes, and embraces the necks of the teeth. They are remarkable for their hardness and insensibility, and for their close contact without adhesion to the surface of the teeth. From the neck of the tooth they are reflected into the alveolus, and become continuous with the periosteal membrane of that cavity.

At page 407 we find a description of the origin, course, and distribution of the trifacial or fifth pair of nerves, the nerves which supply sensation and support the nutritive powers of the teeth. It is through the medium of these nerves that those dreadful pains indicative of disease in the teeth are evinced; and by means of the intimate com-

munication between these nerves and the rest of the nerves of the body, those secondary effects are induced which at first sight appear so widely distant, but which are in reality the direct effects of disturbed action or disease in the dental organs, we allude to the convulsions of children, tic-doloreux, and many of the hysterical disorders of adults.

We have allowed the interest excited in our minds by this beautiful work, to lead us farther than we had intended, and, indeed, than the limits of our Journal justify; we therefore take our leave of it by recommending it very strongly to our readers. They will, we doubt not, rise from the study of its pages gratified and instructed, and they will be in possession of one of the most richly illustrated of the works on Medical Science.

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A TREATISE ON MECHANICAL DENTISTRY.

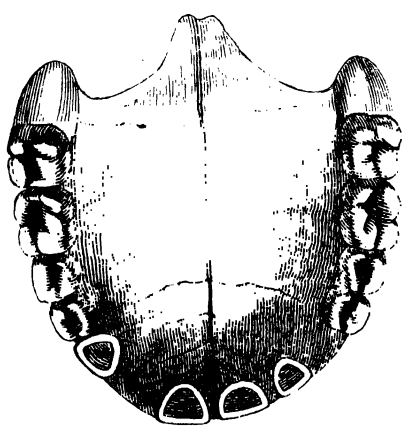
(*Continued from page* 63.)

CHAPTER II.

Of the insertion of several teeth on natural roots, in cases where the number of natural roots do not equal the number of teeth to be inserted.

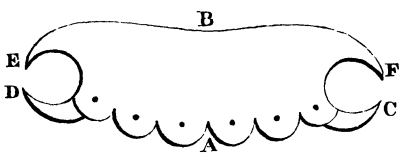
37. It sometimes happens that several good roots remain in the mouth, fit to sustain artificial crowns, but that some one or more roots have been removed either from between or near the others, so that a complete arrangement cannot be effected on the principles laid down in the first chapter.

38. Let it be supposed that the crowns of the four upper incisors and the two cuspidati are lost, and also the roots of the right cuspidatus and left lateral incisor; as in the following cut.



In this case although the four remaining roots would sustain four separate crowns independent of each other, yet there would still be two vacancies which are to be supplied; and though in the case supposed in the cut there are back teeth which might be used to sustain a plate, with clasps, yet the patient might not consent to the use of them; and cases moreover often occur in which there are no back teeth in the mouth, leaving it imperative on the dentist to sustain the six front teeth on four roots, as in the cut.

39. Take a wax impression of the front part of the mouth, embracing at least the entire space to be supplied with teeth, as described in sections 16 and 17, from which proceed to obtain metallic casts as explained in sections 18 and 19. To that part of the tin cast representing the space to be occupied with artificial teeth, fit a plate of tin or lead rolled to the thickness of drawing paper, so that it shall cover the ends of the roots together with the space left by the two teeth that have been extracted, extending back into the mouth three-fourths of an inch, and passing behind the first bicuspides on each side of the mouth. Bring the two casts together upon the soft metallic plate, and then trim it to the following shape.



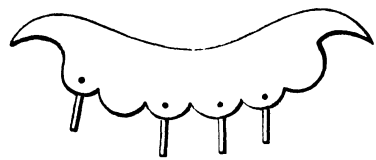
a is the front part covering the roots; *b* the back part extending to the roof of the mouth or palate; *c* and *d* are points of the plate which serve to retain it in its place while struck between the casts, but are afterwards cut away in case they are too much in sight; *e* and *f* are points extending behind the first bicuspides, which serve to sustain the piece steadily in its place; and especially prevent the whole apparatus from being pushed forward by the action of food, the tongue, or the antagonizing teeth.

40. Reduce the soft metallic plate to a plane surface under a planishing hammer, and employ it as a pattern by which to cut the gold plate which must be struck between the casts as explained in sec. 20. In swedging large plates which are to be much bent between the casts, care must be taken to anneal the gold plate once or twice during the operation, which is done by simply beating it to redness either under the blowpipe, or in a coal fire, care being taken that the gold be not melted by excessive heat.

41. Pierce the gold plate with small pivot holes by means of a plate punch exactly over the nervous orifice in the roots, into which solder pivots of gold or platina of the size of a small knitting needle, and

one-fourth of an inch in length; after which clean the plate, file it smooth, and cut off the corners *c* and *d* of the plate, if the case requires it.*

The plate and pivots will now assume the following appearance.



Adjust this plate to a plaster cast which has been reserved for this purpose, in order that the artificial teeth may be ground and adjusted to the plate just as it is desired they should stand in the mouth. To this end support the teeth in their just position by means of softened bee's-wax placed behind them on the plate to which it may be made to adhere by warming the plate.

If the patient can be seen at this stage of the process, instead of fitting the teeth as just described, according to the best judgment of the operator, cover the plate with softened wax, which place in the mouth, and bring the ends of the teeth of the lower jaw against the wax till the mouth is shut in its natural position. The impression of the antagonizing teeth in the wax, will be a sure indication of the just position of the artificial substitutes. The wax may be cut away with a penknife as each tooth is adjusted in its place.

If, on the other hand, the operator finds it necessay to fit his teeth to their place before seeing his patient, the whole may be tried into the mouth by proper care; or if sealing-wax be used instead of bee's-wax, the trial will be attended with no difficulty.

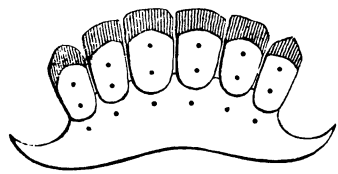
42. When the mineral teeth have been set in the position required, and grouud at the butts so as to fit the plate accuratel, and project beyond it in order to touch and

* The most accurate method of obtaihing the exact point where these pivots should be inserted, so as to correspond with the natural hole of the fang. Fix a small piece of softened bee's-wax upon the plate opposite the roots in the jaw. Replace it upon the model, on removal, a raised point will be observed in which the pivot is to be inserted and soldered.

even press upon the gum, cover the enamelled faces of the teeth with a mixture of plaster and sand in equal parts reduced to a paste with water. This mixture is little liable to crack under the heat of the blow-pipe, especially if secured by a few turns of fine iron wire, such as dentists frequently need in various parts of their work. This wire is little thicker than a bristle or coarse hair, and is so soft and pliable as to be little liable to break.

Remove the beeswax from behind the teeth, which may be effected with a penknife, or by the aid of warm water.

43. Each tooth may now be removed from its place, and a gold back or stud may be fitted to it as described Care should be taken that the gold back be fitted closely not only to the tooth but to the plate, and if, by accident, the junction with the plate should be imperfect, the vacancy may be filled with gold foil carefully introduced so as not to change the position of the tooth. Over this foil the solder will follow, and even incorporate itself with the foil, uniting the whole into one solid mass, especially if a sufficient quantity of solder be employed. When each tooth has its gold back thus properly adjusted, the whole piece will have the following appearance as seen from behind.



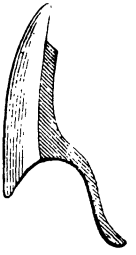
44. When the plaster has been thoroughly dried, which may be done in an oven, provided the operator be in haste, or over a fire in a ladle, provided the degree of heat used be not sufficient to *recalcine* the plaster, the piece is ready to be soldered.

In order to perform the operation of soldering with neatness, solidity and beauty, apply the borax to the back of the tooth only, quite down to the plate, by means of a flat thin piece of cane, or a small camel hair brush. A sufficient quantity of the borax will run down upon the plate without applying any to that, and if the operator has any fear that the borax will carry the solder over too

great a portion of the plate, he may apply a thin coating of whiting to all that part to which he wishes no solder to run, leaving in all cases a semicircular spot behind each tooth, which must be kept quite clean in order that the solder may run over it unobstructed, Next, apply a quantity of solder to the back of each tooth, nearly or quite equal to the weight of the back itself. This may be in one or several pieces, at the pleasure of the operator. Let the borax dry, if time will permit, lest it should displace the solder during the sudden conversion of the water into steam by too great a degree of heat.

45. Before applying the blowpipe, a piece of charcoal, cork, or pumice, mentioned in the first chapter should be procured.

Let the operator not forget to apply the heat with caution, lest the teeth be cracked by sudden and unequal expansion, and let the heat be continued until the solder assumes the form best calculated to give strength and beauty to the work. This form which the solder should assume, may be thus represented on a single tooth when seen laterally with a section of the plate.



Should the quantity of solder on any tooth be found insufficient, more may be added during the process of soldering, and the heat again raised to the point of fusion.*

When the piece in question has been properly soldered, cleaned and polished as already described, the pivots may be wound with a little raw cotton, or floss silk, before fixing the plate firmly in the mouth, in order to avoid the wearing away of the roots by the metal; or when the cavities in the roots are very large, they may

* These remarks apply only to those cases where the American or French mineral are preferred. If natural or English mineral teeth be used, it will be necessary to attach the pivots to the plate, &c. as described in the first number, note, page 57.

be filled with soft wood, and the pivots inserted into these wooden plugs.

Of the insertion of a single tooth in the absence of a natural root.

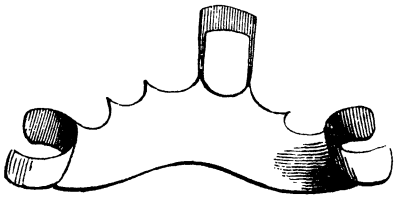
46. This is so nice and difficult an operation that I shall deem it expedient to present several examples, inasmuch as we find that many dentists who can construct a good double set—rarely ever succeed in setting a *single tooth* well.

Let us first suppose that the tooth to be supplied, is a central incisor of the upper jaw; and that it is intended rather for show than mastication, inasmuch as the patient is unwilling to submit to an arrangement that would render the artificial substitute fit for general use.

After fitting a gold plate to the space to be occupied by the tooth, as already directed, solder a wire of fine gold or platina to each end of the plate, of sufficient length to embrace the two adjacent teeth as far as those next to them will permit, as follows;

Such a plate with its clasps of wire, when well fitted to the gum and the two adjacent teeth, is found to sustain a tooth in its place with sufficient firmness for all purposes excepting that of masticating food; but if a tooth be desired for the performance of this latter function, another plan must be pursued.

Select two of the molares or bicuspides, one on each side of the mouth, around which clasps of gold may be adjusted, either with or without filing a passage for the clasps, as circumstances may require. To these clasps attach the extremities of a plate constructed as already described, and sustaining the tooth as follows:



As the best methods of attaching a clasp to a plate in a neat manner, are of some importance to the student, I may state that winding with fine iron wire will sometimes succeed, yet the following mode is always most efficient and exact. The clasp which in most cases should be as wide as the tooth it embraces will admit, may be secured to the gold plate while both are on the model, by joining them with beeswax, or, when necessary with sealing-wax. Then lift the whole carefully from the model, lay it on a piece of paper with the side on which the wax is downward, and pour plaster upon the upper side until both the clasps and plate are inbedded in the plaster. When the plaster is set, remove the wax, dry the plaster, apply the borax, and solder as usual.

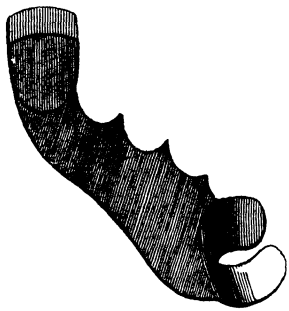
In this as in all other cases when two pieces of gold plate are to be united with solder, if the two do not accurately meet, fill up the vacancy with gold foil before applying the borax and solder, as already directed.

This method of insertion, although more expensive than with one clasp only, has the advantage of greater firmness and durability.

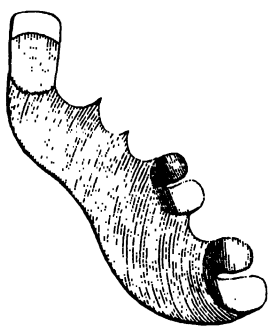
The disadvantages of such a plate and clasps, are, the injury accruing by necessity to the teeth which are embraced by the clasps, and the inconvenience experienced by the tongue from the presence of a plate in the front of the mouth, which the tongue meets in articulating all the lingual sounds. Both these disadvantages, however, are generally preferred to the absence of a tooth from the front of the mouth.

In cases like the foregoing, for the purpose of preparing a metallic cast in such a manner that the gold plate struck upon it shall fit accurately to the natural teeth behind which it passes, cut away from the plaster model all the teeth nearly level with the gum, then after taking the metallic casts from this, strike the gold plate over the whole, and cut away the plate accurately with round files, where the natural teeth are to meet the plate.

47. It happens not unfrequently that, either on account of the loss of the teeth on one side of the mouth, or for some other solid reason, an attachment can be made to only one tooth, or to those on but one side of the jaw. In the former case a piece may be constructed as follows:



If the plate and spring, or clasp, are of considerable thickness and strength, this arrangement will be successful, even for purposes of mastication, but it is desirable in many cases, if practicable, to take two points of support, as follows:

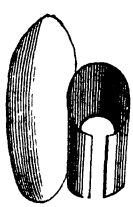


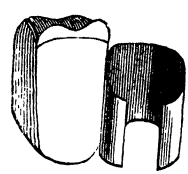
In all cases the clasps embracing natural teeth for the purpose of supporting artificial ones, should be as wide as possible, in order to avoid wearing away the teeth at the neck.

48. Let us next suppose that the second bicuspis has been removed, and the dentist is required to supply its place. The object in this and all other cases, being to throw the fastenings as far back into the mouth as possible, in order to be out of sight, let the clasp embrace one side of the first molaris, and both sides of the second, thus:

This method of fixing will prove very firm, provided the strength of the materials be justly proportioned to the use to which the artificial substitute is to be applied.

In those cases where the next tooth is the only one to which attachment can be made, it must be evident that no great dependance can be placed on the firmness of the work. If however the tooth which is to sustain the piece, be either very flat like some bicuspides, or very strong and angular like some molars, the work will not fail to be of use. Take for example a first bicuspis and a first molaris:





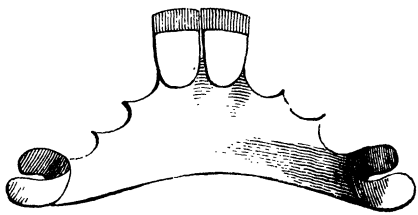
In the former case, if the second bicuspis be very flat the clasp will be little liable to a rotary motion. In the case of a first molaris, when the second is strong and angular, the most perfect success will attend the operation. In both these cases the strength of the material together with the peculiar form of the supporting tooth, will secure the piece from being displaced by any other means than hard food which must not be allowed to come in violent contact with so slight a fixture.

Of the insertion of several teeth on a gold plate with clasps sustained by natural teeth.

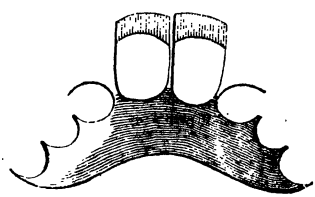
49. As cases of this description are very various, and not less in number than the arithmetical changes that

can be rung on 32 bells, I shall deem it necessary to give only a few examples as specimens of the whole: and I begin with the most common and most important case of this kind, which presents itself in supplying the two central superior incisors.

Although there can be little doubt of the superior permanence and utility of a plate of this kind attached to some of the back teeth, thus:

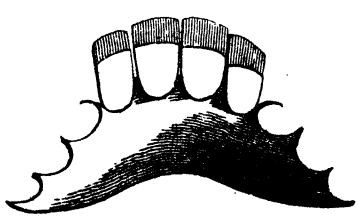


Yet many American dentists and most of the English practitioners would treat the case as follows:



Here the whole apparatus is secured in position by means of two small gold wires encompassing in part the lateral incisors. Some assistance however is rendered by the narrow neckings on that part of the plate which is adjacent to the neighbouring teeth. These neckings must fit with great exactness or they cannot be endured by the tongue. Pieces like this are less liable, perhaps, than some others to affect injuriously the natural teeth: which is certainly a great argument in their favour.

50. Sometimes when even four of the incisors are to be supplied, the same principle is successfully observed, thus:



TO CORRESPONDENTS.

Communications have been received from Mr. S. Brady, G.H.D., Newcastle; J. Elmes, Liverpool; A. West, and Dentist, and Amicus, respecting the forcep controversy. We have published the statement of both parties.

Exeter, Cheltenham, Bristol, and Dublin correspondents, their suggestions, respecting the Mechanical Advertisement, have been attended to.

A SUBSCRIBER. The papers arrived too late for insertion in the present number, they shall appear in the next.

PANLOPE and C. H., must allow us to gratify our own taste in reference to the Mechanical Treatise.

F. B.—We would willingly pay for any contribution of merit, the articles forwarded to us are of little or no value.

We are obliged to our Glasgow correspondent.

T. C. M.—Write to Dr. E. Pamily of New York.

R.L. (Edinburgh) will he favour us with his name (confidentially).

A SURGEON DENTIST.—He is not in any way connected with this publication.

MEDICUS.—Thanks for the newspapers, we shall be obliged to any of our country readers, who will at any time forward to us country papers, containing interesting professional intelligence.

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